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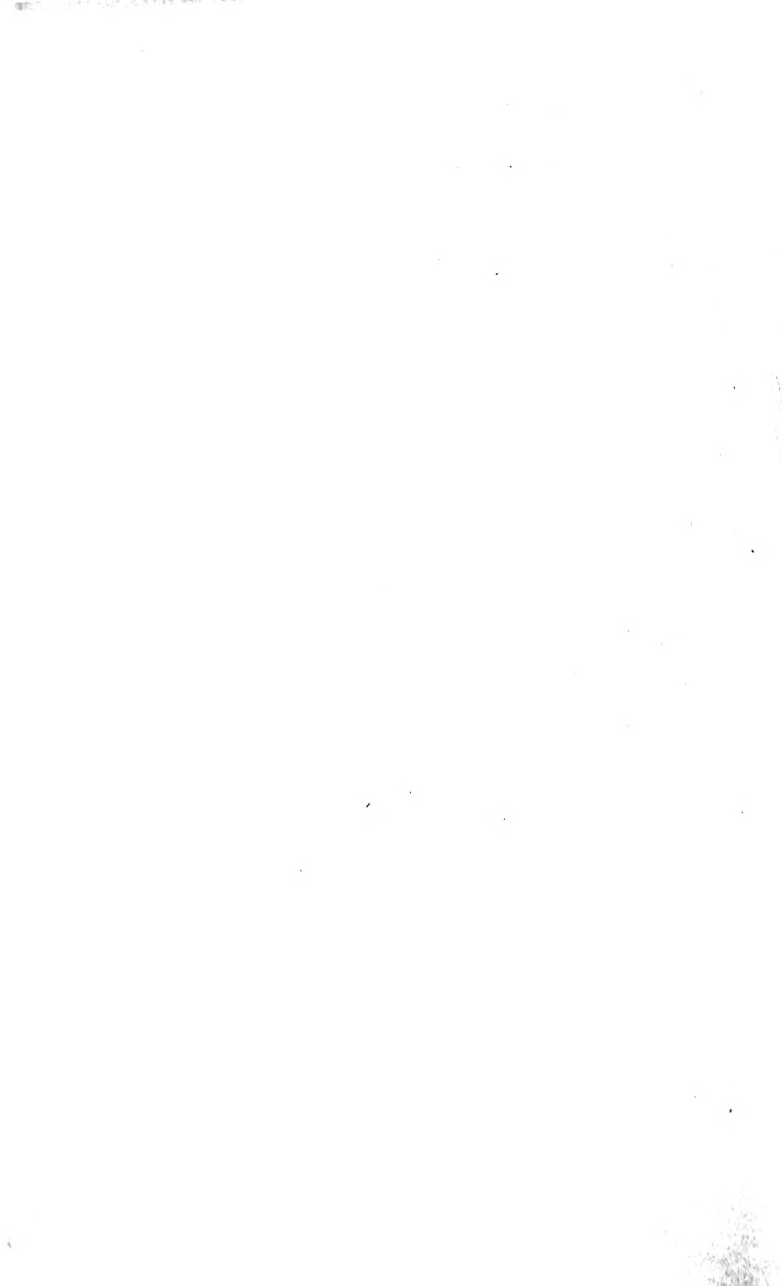
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# INDUSTRIAL INSTRUCTION:

A PEDAGOGIC AND SOCIAL NECESSITY:

TOGETHER WITH

A CRITIQUE UPON OBJECTIONS ADVANCED.

BY

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BOSTON :

PUBLISHED BY D. C. HEATH & CO.

1887.

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ALFRED MUDGE & SONS, 24 FRANKLIN STREET,  
NEW YORK.

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## PUBLISHERS' PREFACE.

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As the readers of Herr Seidel's interesting discussion may wish to know something of the writer and of the circumstances that led to the preparation of this little book, we give the following sketch:—

From his earliest youth, the author was deeply interested in educational questions. He was set to thinking about industrial education by the following statement which he found in the once prohibited, but now famous, work of Karl Marx: "*In the education of the future, labor will be combined with gymnastics and instruction, because that is the only method of training symmetrically developed men, and is also a means of increasing the productiveness of the community.*" Long before the question of industrial education had been revived in Germany by Clauson-Kaas, Seidel had occupied himself with it; and having studied educational science and been a teacher, he believed himself authorized to present the subject from a stand-point other than that from

which it had generally been considered; that is, from the pedagogical side.

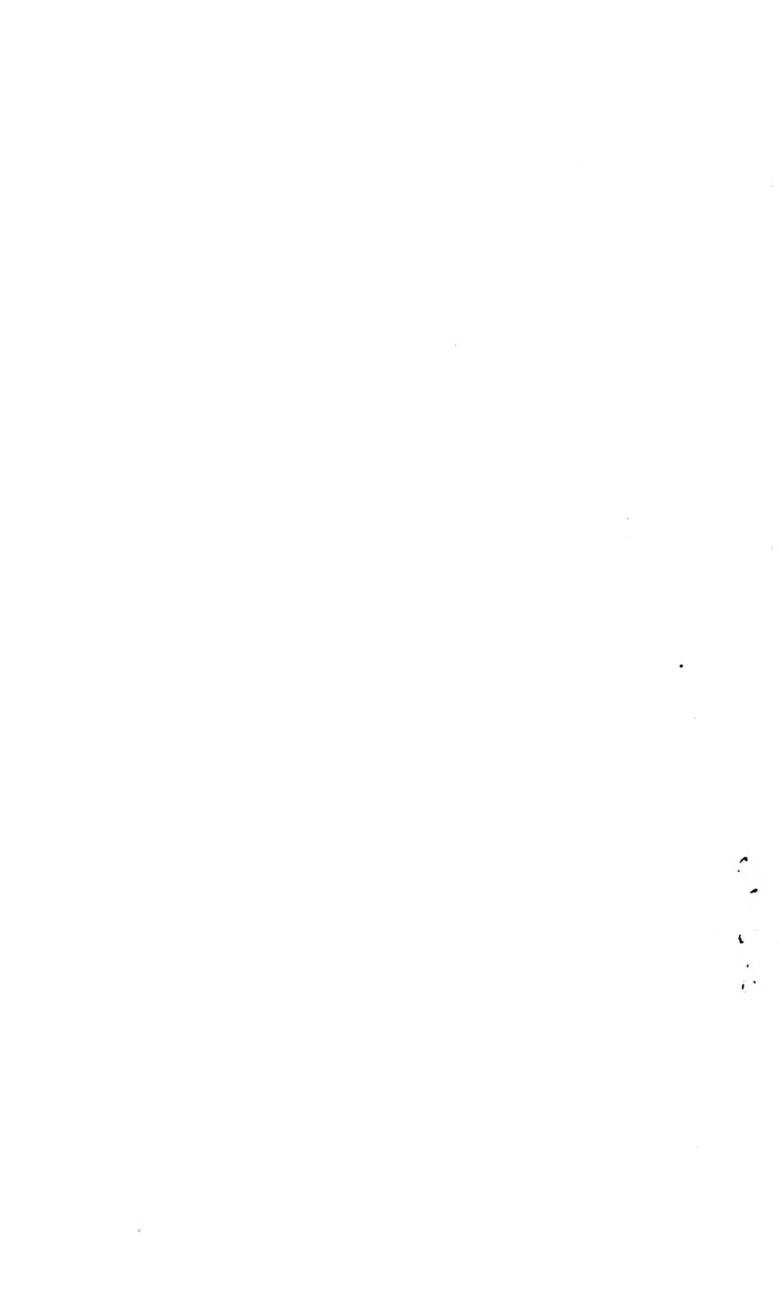
He watched the movement set on foot in Germany by Clauson-Kaas, but was convinced that it was an error to advocate industrial education as a means for elevating the small trades. Through many years' personal experience, as well as by thorough study, he had learned that the small trades were a declining form of domestic industry which it would be as impossible as it was uneconomic to preserve. Experience also showed that industrial instruction, in the sphere of mechanical pursuits, in no way implied the elevation of the small trades. Indeed, the small mechanics already complained that the new branch of instruction was the cause of their ruin,—a complaint which he thought quite as unfounded as the belief that by it the trades would attain their highest elevation. By industrial instruction, he thought the small trades would neither be benefited nor ruined; not benefited, because all the advantages of industrial instruction accrue also to the worst enemy of the small trades, to the large and machine industries; and not ruined, because they were already ruined by these same large industries, with their superior advantages. Seeing, therefore, that the whole

question was being viewed from a wrong stand-point, Seidel interested himself in putting it on a pedagogical and therefore a broader basis.

The present work grew out of a reply made by him to objections raised against industrial instruction in the Synod of the Canton of Zurich, where the question was up for discussion in the years 1882 and 1884. At the earnest solicitation of others, he rewrote the work, omitting local and personal matters, and giving to it a more general character. In it he has undertaken to answer all objections to industrial instruction, from whatsoever source, and to state the reasons in its favor.

He states the question thus: "*Is industrial instruction pedagogically necessary, superfluous, or is it actually injurious?*" And adds:—

"If it can be shown that it is a pedagogical necessity, it becomes the duty of all educators and philanthropists to aid in removing the practical difficulties that oppose the introduction of hand labor into the school."



## INTRODUCTION.

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AT the International Educational Congress held at Havre, France, in September, 1885, I heard Herr Seidel speak upon the question of industrial instruction in the schools, and was much impressed with the earnestness of the man, as well as with the force of his arguments.

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Herr Seidel's book upon the above-mentioned subject has already been translated into French and Italian, and I now have much pleasure in presenting it to the attention of English-speaking educators and schoolmen, with the hope that it may aid in crystallizing the somewhat indefinite thought upon the question of manual instruction in the schools, which already exists in both England and America.

The translation of the work of a writer so unique in style, and so peculiar in the use of words, has been no light task. I have endeavored, however, to preserve

something of the force and clearness of the original text, in which effort I have been greatly assisted by Madame Thekla de Soto, of Jena, Thuringia, Germany, and Prof. C. M. Woodward, of St. Louis, Mo.

MARGARET K. SMITH,  
*State Normal School, Oswego, N. Y.*

JUNE 30, 1887.



# INDUSTRIAL INSTRUCTION.



# INDUSTRIAL INSTRUCTION.

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## CHAPTER I.

### THE INNER RELATION BETWEEN INDUSTRIAL INSTRUCTION AND THE SOCIAL QUESTION.

THE friends and opponents of industrial instruction are doubtless right in presenting this subject in connection with the social question. Just as the question of popular education in general is connected with the social question, so the question of industrial instruction in particular is united with it.

In the literature extant, we seek in vain to discover an explanation of the relationship existing between the two questions. No one fails to perceive that they have many exterior points of contact, and these are generally pointed out; but what inner connection exists between the two? Let us try to make this clear.

If we follow the history of education and instruction among different nations, through different epochs, we shall find that they, as well as literature and art, law and morals, stand in the closest connection with the existing social and political conditions. Indeed, we see that they are only expressions of these conditions. While in regard to literature and art, law and morals,

this truth is to a certain extent recognized, in connection with forms and systems of education and instruction, it is not at all properly recognized. *Yet education and instruction throughout are only expressions for existing social and civil relations.*

In order to prove the correctness of this assertion, we have only to ask whether, in the feudal state, before the Revolution, our present public-school system could have had a place.

Surely, as with one voice, the answer will be, *No*. Before 1798, and even before 1830, our school of to-day was not possible, not even conceivable. The gracious lords<sup>1</sup> would not have permitted it. They, in common with all other rulers, declared education to be one of their inalienable prerogatives, and forbade it, and rendered it impossible for the people. Also, previous to emancipation from the burdens of feudalism, the people had neither means nor time to have such a school as exists to-day.

*Our present school exists on the presumption that it is the product of our present civil society.*

But as our present system of education and instruction is the expression of our present civil society, so was the mediæval system of education and instruction the corresponding expression of feudal, clerical, and corporate society, and the system of education in ancient states the expression of a society established upon slavery.

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<sup>1</sup> Written with special reference to Switzerland, but in reality true in regard to other countries.

Before slavery existed, in the narrow tribal life, all authority was vested in the elders, who also discharged the duties of instructors. But in doing this, they could develop a system of education and instruction as little as, through the isolated examination of natural objects, minerals, plants, animals, etc., they could establish a science. It was simply domestic education, yet, in this connection, it is not necessary to think of a house or home; it may be just as correctly associated with a tent, a cave, a forest, or an open field. As domestic education, it was an individual education, without coherence, conscious aim, principles, or system.

But as slavery increased, and out of tribal rule a state with a governing class was evolved, a state education, a system of instruction, was developed. At first, this education had naturally but a single aim, viz., to strengthen the power of the governing classes, and to fortify and increase their superiority. We need only think of the Spartan system of education. As all labor — even training and teaching — was despised, so the duties of instructing and educating were transferred to the slaves. Even in the glorified land of Greece, the educators were slaves, and occupied a much lower plane, socially, than the nursery-maids of the present day.

In the ancient states, education and instruction being limited strictly to the governing class, the great mass of the nation, the slaves, were completely excluded from its advantages. The austere Cato, who wrote, among

other things, pedagogic treatises, advised that the custom of resting on Sunday be discontinued, that the slaves might be employed on that day; "for," said he, "the slave must either work or sleep; otherwise, he will entertain improper thoughts."

When with the Roman Empire the Old World declined, and out of long wrestling and struggling the castes of the Christian world arose, the forms of education and instruction became changed. The education of classes was established. *Priest, knight, and burgher* were reared and trained. In the early Middle Ages, when the citizen's position was as yet undeveloped, the education of priest and knight exceeded that of the burghers, who were weak in numbers and consequently powerless. As with childish presumption, mediæval society considered itself to be merely a continuation of the Roman, as Latin was the ecclesiastical, secular, and commercial language, and furthermore, as the Old World treasures of learning had become crystallized in the Latin tongue, we cannot wonder that to priest and burgher, Latin appeared to be the principal means of education, as well as the end and aim of all teaching and learning.

For the knights, however, gymnastics, the use of arms, and court service were the aims of instruction and culture, because they — as was Latin for the clergy — were the means of government.

But as the citizen class constantly developed, burgher education also became more prominent. Naturally, the

development of the burgher class went hand in hand with the decline of the nobility and clergy. This development was greatly promoted by the discoveries and inventions of the fifteenth and sixteenth centuries, and this powerful strengthening of the burgher's position found its expression in a still greater advance in burgher education and culture. From the sixteenth century forward, burgher education and training were predominant, while the clerical and still more the knightly, retrograded. Already isolated educational prophets appeared, and proclaimed, of course without practical success, the idea of popular education. But in the eighteenth century, when the burgher's position became that of the mass of the nation, the idea of general education as a practical necessity, and no longer as a theoretical formula, first arose and opposed the idea of the education of rank or class.

Those forerunners of popular education — a Rousseau, the philanthropists, a Pestalozzi — knew very well what was meant by this, and their followers must also have known, otherwise would the common school of modern times never have become a reality. General popular education was to them no mere phrase, too indefinite, saying too much and therefore too little. They did not understand from it arithmetical expedients from the learning of the Europeans, the Chinese, and the Soudanese, but they understood, in the first place, opposition to class and caste instruction; and in the second, the harmonious training of all the

faculties and talents of all men, at least of all the members of the same nation.

Now, is this general education already achieved? No! and again no! It has only made a mere beginning in the public school. The foundation is laid, but as yet no building has been raised thereon.

Who will deny that even to-day we are authorized in speaking of class education, in the face of the fact that the majority of our young citizens have hardly command of even the elements of education and knowledge, as is proved by the recruiting examinations?<sup>1</sup>

Is it not true that between the factory hand and the educated man of to-day almost as great a gap exists as between the slave and the philosopher of ancient Greece? How much of literature, art, and science does the mass of our people understand? Who reads our classics? Who appreciates our art treasures? Who comprehends anything of the enormous acquisitions of modern science?

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<sup>1</sup> In Prussia, for some time, recruits for the army have been examined in reading and writing, and it has been shown that in single provinces, thirteen and even nineteen of every hundred men have not been able to read and write.

In Switzerland, where for ten years these examinations of men capable of bearing arms have been made by teachers, and not, as in Prussia, by military men, and have included arithmetic and knowledge of the fatherland, *i. e.*, geography, history, constitutional history, only a few were ignorant of reading and writing, in 1884-85 from three per cent to four per cent, but the general results were very limited and unsatisfactory.



Every one who knows the circumstances can answer the question only with deep sorrow and confusion.

So long as such gaps yawn between the members of a nation, the demand for general education appears to us, and to many thousand others as well, to be no mere phrase, though a thorough schoolman may find it too indefinite.

In the face of the fact that it is still possible to set people against each other like wild hordes, it can be no mere indefinite phrase. If general education were achieved, this would be simply impossible. ?

Indeed, we should be careful of speaking slightly of general education, for the reason that our noblest and best men have struggled and suffered for it.

The fact that the *promulgation of human development* goes hand in hand with the *promulgation of human rights*, proves the close connection between great educational theories and social revolutions. About the time of great social transformations, great educators always make their appearance. *Hence, each form of society begets its form of education, and each stage of the economic development of mankind implies a definite system of education and instruction.*

We no more have a constant, unchanging pedagogy than we have an unchanging form of society ; both are in a state of continual movement and continual development. Now, in the matter of social development, what is our position to-day? Whoever has capacity to understand and interpret the sighing and groaning in the x

rushing loom of time, knows that a mighty social revolution is in the near future. The present economic form of capital, private production, free competition, and profit of men by men, has expired; it has become an anachronism, and must go the way of slavery and feudalism. We already find ourselves in a transition state, ready for new economic forms, for common interests, intelligent co-operation, and assistance of all for all.

✓ In proportion to the realization of this new social form will a new system of education and instruction make its way. The new element in this system will be the principle of hand labor. The principle of socialism, to make co-operative profitable labor the groundwork of social and political life, demands recognition and realization in the educational department. We do not consider industrial instruction to be merely occupation for otherwise idle boys, still less an opening of new sources of profit or income for poor parents, or the improvement of handicrafts; but the introduction of a new principle, that of labor, into public instruction, exactly as the Rousseau-Pestalozzian movement was considered with regard to the principle of natural development and observation.

We are neither afraid nor ashamed to assume the prophet's role, and to predict: —

*So surely as with civil society the ideas of the culture of mankind, natural development, and observation made their way into the pedagogy of the time, so surely with the new order of society will its principle, labor, achieve*

*its citizenship in the system of education. Struggling against it is vain. The future in the state, as well as in pedagogy, belongs to labor.*

We should not be guided to false conclusions by the historical evidence that, during the last hundred years, industrial instruction has several times vainly demanded admission into general education. Whoever, on the plea of its worthlessness, would exclude this branch of study, together with its method, or would be misled into the belief that industrial instruction will never be admitted into the plan of public education, would only exhibit a very unflattering evidence of his own historical knowledge and judgment. Objective instruction was obliged to wait nearly two hundred years for general recognition and adoption, yet to-day no one will question its value. Sometimes the good triumphs late, also sometimes not at all. Success is a standard not to be employed by critics.

As a sign of the times, we quote a selection from the discourse of M. Jules Ferry, late French Minister of Public Instruction, upon the occasion of the laying of the corner-stone of the school for primary, superior, and professional instruction (at Paris). He spoke as follows:—

“We desire to ennoble hand labor. We have written this motto in large letters upon our programme, and we have chosen the surest, indeed the only means of securing the recognition of the nobility of hand labor, not only from those who exercise it, but also from society

as a whole. We have introduced hand labor into the school itself!

"Believe me, when the plane and file are accorded their place of honor by the side of the compass, the map, and the text-book in history, and when they become the objects of rational and systematic instruction, only then will a great amount of prejudice die out, and much of the spirit of caste vanish away. Social peace will find a place upon the seats of the elementary school; and harmony, with her beaming light, will illuminate the future of the nation!"

• Truly, if this has been declared by the leader of public instruction for a great nation, and if, as we see to-day in France, the word has become flesh, then this matter cannot be arrested by a few apt phrases of schoolmen, but with or without the mediation of official pedagogy, must make its way through the educated world.

## CHAPTER II.

ERRORS, CONTRADICTIONS, AND INCONSISTENCIES OF  
THE OPPONENTS OF INDUSTRIAL INSTRUCTION.

ALL opponents of industrial instruction, from the great Diesterweg to the smallest laborer in the vineyard of education, start from the entirely false premise that industrial instruction in the public school has for its aim the training of the children for mechanics. They consider that it implies the introduction of one or of several definite trades into the school. Out of industrial instruction they make a kind of spectre, strike out boldly at this phantom of their own construction; and since every spectre is easily vanquished, in the eyes of many spectators they succeed in slaying this dragon. While Diesterweg, in regard to industrial instruction, restricted himself to speaking of learning special handicrafts in the school, and Grube discourses upon "apprentices to trades," a later and more important educational writer deals with "bread-winning instruction for the children in the school," and another with "excessive labor before the proper time."

But the latest opponents of this branch and method of instruction thoughtlessly identify the Klauson Cass

efforts for the elevation of domestic industry with industrial instruction in general, whereby they place, not only the efforts mentioned, but especially the aim of the Danish Rittmeister in a false light.<sup>1</sup> However, if we credit the Danish Rittmeister with efforts for the elevation of domestic industry, we characterize only the object and not the person.

The identification of these efforts with industrial instruction is, however, a fundamental error which is only explicable upon the grounds of ignorance of the history of industrial instruction, lack of discernment, or preconceived prejudice. This error is unfortunately so universal that even the friends of industrial instruction are not free from it. The attacks of the opponents of industrial instruction, however, are not directed in their overwhelming majority against it, but generally against efforts for the elevation of domestic industry, which, as a rule, they exaggerate; hence they apply to the case of Klauson Cass, and not to industrial instruction in general. Now, these movements for the promotion of domestic industry represent only *one form, and indeed the lowest form, of industrial instruction*. The adherents and forerunners of this kind of industrial instruction — among whom Klauson Cass, from his theoretical stand-point, can no longer be numbered — *observe as their aim principally the devel-*

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<sup>1</sup> This reference is to Klauson Cass, a Danish gentleman, who, a few years ago, published a work in connection with industrial labor in the home.

*opment of certain kinds of manual skill, partly by this means to promote domestic industry, partly to prepare for a later profession, to supply trained strength to hand labor, and thus to elevate it.*

Their motives are essentially of an economic nature, and indeed *limited to very narrow grooves, in which educational considerations have no part.*

A second much higher form of industrial instruction is advocated by those who seek for the aim of industrial instruction preferably in the training in manual skill, in awakening pleasure and love for labor and intelligence for life. To them formal training is the chief object, and hence they unite theory with practice. While with the first party, essentially economic points of view are determinative, with the second principally educational points of view are authoritative; while, according to the first party, any mechanic totally untrained in pedagogy may act as instructor, though he understand not a particle of the theory of his trade, according to the second party *technically trained instructors will be required.*

The point which the two parties have in common is that a practical element shall be infused into the school, and a closer connection between it and life effected.

Now, although we advocate the views of neither party, least of all the first, we must admit the common aim to be entirely justifiable. Also, who would be so short-sighted as not to perceive that a closer connection between school and life is necessary, and that the school

needs a practical element as a change from its abstract instruction? To the third party of advocates of industrial instruction belong those who perceive *in hand labor an indispensable means for the harmonious education of mankind*. To them, labor is not, in the first place, the end and means for the satisfying of economic needs, but it is, *above all, the means for physical and mental training and education*. Training in manual skill, satisfying of material needs, preparation for life, are thereby certainly not excluded; but they are not the first aims, say rather the second, third, fourth, or that they may be considered incidental products. Besides less well-known names, nearly all the great educators, especially Rousseau and Pestalozzi, appear as advocates of this party.

Now, if industrial instruction be opposed from the educational side, — and the opposition is chiefly from that side, — the educational view of it should be opposed, and not the economic, small-citizen view of a Klauson Cass and of our mechanics. That would be proper for educators, for to them educational and not economic reasons should be the standard.

From the above few remarks it is easy to perceive that it is wrong to assert that industrial instruction deals only with home labor and domestic industry. If this were truly the case, we should not advocate it, for we know that home labor is a declining form of production, which, on account of hygienic and moral injury, is rightly condemned in political economy. We have



ourselves suffered from the pernicious influence of home industry, and lost by it several years of health, strength, and enjoyment of life, so that we can not become enthusiastic over home labor, which means home industry. Home industry is nothing but a great martyrdom for the laborer who pursues it. It is also an economic anachronism, opposed to the progress of large industries, which only preserves its identity for the reason that by it the laborers employed are so badly paid and stand on so low a social scale, that the furnishing of effective machinery, otherwise long known, pays the undertaker no better than the employing of the cheapest kind of hand labor. *Whoever can at present recommend home industry as a social remedy, certainly does not know it from personal observation, and has very little idea of modern systems of labor.*

Those who, by home industry, propose to relieve the social need, start from the supposition that social misery had its origin in the people's aversion to labor. This is absolutely wrong. Need and misery have not arisen from dislike for labor, but from the absorption by large capital of the interests of the citizen and farmer of the middle class, and from human labor power being replaced by machinery. Thousands of laborers would gladly work, if they could only find work to do. Do we not know that laborers out of work demand employment from state and community? Is this, perhaps, a sign of aversion to labor? or, when merely to tide over a crisis, skilful mechanics, indeed, artistic workmen, do the

work of navvies, is it a sign of dislike for labor? When we speak of laborers who are suffering severely under a crisis as if they were people dreading work, who must be assisted economically and morally by having pleasure infused into labor, do we not add mockery to misery? We know needy German districts and otherwise poor neighborhoods, so called, but we have never seen and never heard that the population living in those places ever failed in industry and love for labor; but certainly work, or, at least, profitable employment, failed them.

Then, who is to be assisted by home industry? The factory hand and the laborer in domestic industry. But if the business is good, then the factory hand, with from eleven to fourteen hours', and the laborer in home industry, with at least fifteen hours' time for work, has more than enough to do. Neither time nor strength remains to him for the exercise of other home labor. However, if business does not flourish, and he has time to be diligent at home, and zealously constructs brushes, brooms, baskets, pasteboard work, house and kitchen utensils, good! but who is to buy them from him? Even in good times people buy those things last of all; also, there is really no lack of them, and a part of them is so cheaply manufactured on a large scale that the unskilled small producer has no chance at all for competition. Besides, where would the laborer get money for the purchase of tools and raw material, especially if no immediate exchange of the labor products were possible? It is plain that in order to help suffering laborers through

a crisis by means of home labor, they must all be made small manufacturers, capable of keeping goods in stock. *This can be done just as little as home labor can help the social misery of laborers.* Those for whom home labor is recommended as most useful can make no use of it. What irony !

But home labor cannot improve the condition of the small farmer ; at the best it can only furnish him with a few advantages. It will not, however, guard him from social stunting, for it is no remedy for the disease from which the small farmers suffers, viz., *the impossibility of competition with large business and large capital in agriculture.*

As little as the small farmer can compete with large agriculturists, just as little, or indeed still less, can he appear as competitor with large industries ; he cannot even compete with the mechanic, for he can only, during a small part of the year, devote his strength to home industry ; hence, he lacks the skill and practice peculiar to the mechanic. Then again, the farmer with his home-made articles could never appear as producer for the market ; by means of home industry he could only supply his own needs. Under undeveloped economic conditions this producing, mending, and repairing may be of use in supplying individual needs ; under developed economic conditions, since the farmer has ceased to produce for himself, where he rather produces for the market, and obtains his supplies from the market, then the making and repairing of domestic

utensils has for him no, or at best only a questionable, economic advantage.

*Hence home labor is only a very doubtful remedy for this class; indeed, it hardly deserves the name of such.*

For the artisans' class, home labor can not be considered a social remedy, for when would the artisan pursue home industry? If business prospers, then he has work enough; if not, then the dilettantish pursuit of another handicraft would not help him. Besides, upon the occasion of a depression in business, when the products of a large trade are not salable, it is not probable that those of a small industry would be so.

Now, the small, badly paid officials of all kinds only remain. Of them it can be said that they have time to pursue home industry, and thus increase their incomes. But in the cities, and there the greater part of them live, where have they dwellings in which they can pursue home industry? Nowhere. And if the problem of dwellings were solved in favor of home labor, where would be the establishments which would make it possible for the laboring officials to bring their wares to the purchaser? They are yet to be provided. Also, the producers could not be considered capable of competing with large industries; then home labor must remain limited to the supply of individual needs. The direct economic advantage for the person so occupied is so problematic, that by it his position can in no way be improved.

*The sum of the matter is, that home industry, as a social remedy, is Utopian.*

It is quite different to view the question from a stand-point according to which it cannot be understood as home industry, and cannot be recommended as a remedy for social needs, but only as a pleasant employment in leisure hours for teachers, scholars, officials, and others of the better situated classes. This stand-point is entirely justified; *it is, however, not economic, but pedagogic.* Such domestic industry has no economic, but merely a moral value. Since industrial instruction could improve such home labor, this would be a good reason for its introduction into public instruction.

From the foregoing characterization of the forms of industrial instruction, it is furthermore obvious that we are not authorized in opposing industrial instruction to general education, as is often done by the opponents, and even by the individual advocates of the former.

*Industrial instruction is in no way opposed to general education, but is itself a means for securing the same. We are not dealing with home labor as a Utopian means for removing social calamity, but with the highest and deepest pedagogic questions.*

Truly we can hardly understand how it is possible to attack industrial instruction with the commonplace talk about "bread-winning instruction and overwork in the schools" before the children have reached a suit-

able age. We know very well that there are schools into which a kind of mediæval branch of industry has been introduced, — schools in which the children are employed with a kind of mechanical, spiritless work ; but to call labor pursued in this way industrial instruction, and to present it as an objection to industrial instruction, is about as reasonable as to present a mechanically conducted school of study as a type of schools of study, and because of it to condemn the whole institution of schools. Nevertheless, the opponents of industrial instruction, either knowingly or unknowingly, practise this system of attack, which seems to us as little worthy of an educated man as it seems uncritical to condemn the whole system of kindergartens because a number of badly conducted kindergartens exist. If we were to deal so with all human institutions, we should be obliged to reject them all, for even those founded upon the best principles exhibit here and there a practical mistake. In this way, we should soon come to absolute Nihilism.

As regards the acquisition of bread-winning knowledge in the schools, we may justly wonder that this argument should be brought against industrial instruction by schoolmen, as the advocates of schools for study omit no opportunity of mentioning their practical benefit. We have never yet heard it stated that the school does not and can not prepare for life. But preparation for life, prosaically expressed, is nothing else than bread-winning instruction. If, therefore, the aim were

truly defined for industrial instruction (which is seldom done, and indeed never among educators), viz., to teach the children to earn their bread, it would not be at all foreign to the purpose of the present school, but according to the proclamation of all schoolmen, and a purely legitimate definition of its peculiar aim. A large number of school laws declare emphatically that the aim of the public school is education for civic usefulness and preparation for life. Unless this aim of the public school is denied, then industrial instruction can not be turned off with the misleading phrase (especially, used in pedagogic circles) "bread-winning instruction." *But without putting one's self in opposition to its whole historical development, to the classic educators, and to the popular understanding of the purpose of the public school, this aim cannot be denied.* If it should be stated that the school does not enable the child to earn a living, and can in no way fit him for life, how can the great sacrifice which the people make for the school be justified? However, not only men of business say that the present school does not fulfil its purpose, and is worse than nothing as a preparation for life, but, among all the people, the opinion is spread abroad that to the great mass of its adherents the school is of very little worth. From this view, can we wonder that the people have so little sympathy with the school, and even upon occasion show themselves hostile to it? Those who have to struggle with the cares and needs of life, as at present large masses of the people must, are

not inclined to bear sacrifices for institutions whose benefits are not clearly manifest.

We repeat, not only the laity and school enemies are led to doubt the benefits of the present school for the life of the people, but professional people, and warm, indeed the warmest friends of the school. Hence, from the educational side, it is fitting that we should test the means which claim to prepare the children for life better than those which are at present employed. The matter is too important to be satisfied with catch-words; we must keep to the point.

Furthermore, by confusing industrial with professional instruction, and mistaking one for the other, the opponents of industrial education make a great mistake. Now, it is perfectly clear that the two branches are widely separated, industrial bearing about the same relation to professional instruction that elementary instruction bears to instruction in a special science, *e. g.*, in Ophthalmy. Nevertheless, if one be taken for the other, then it is evident that wrong judgment and entirely irrelevant argument must arise; and this is actually the case. Because of this confounding and confusion, it is almost comical to see how the opponents go out of their way to show that industrial instruction can not make a skilful and ready mechanic; that it is too early; that it anticipates an instruction which belongs to the workshop; that because it is too early, it causes weariness of the school; that with children it must degenerate into play, as the military play, for the



training of youth (cadet system), and hence wearies and disgusts them, etc.<sup>1</sup>

Certainly, these arguments are only correct under the supposition that industrial and professional instruction are the same thing; but as this supposition is false, they, in general and particular, amount to nothing. *They prove nothing against industrial instruction, but only against premature professional training. Industrial instruction, however, is not intended to be professional instruction, but only a general preparation for practical training, just as school instruction is a general preparation for theoretical training. This, however, is not its principal aim; its principal aim is the harmonious development of the future man.*

“Hand labor is good; it is, indeed, for the child indispensable, as it constitutes a part of its nature. Its effect is moralizing, its usefulness indisputable. The introduction of this labor into the school is an ideal which it is impossible to attain; although it would educate the poor child against greed and cupidity, and preserve him from vagrancy and beggary, and in view of his future calling in life would be of great benefit to him.”

One would think this must have been said by an advocate of industrial instruction; but this would be a mistake. It was indeed said by an opponent who has gone so far in his arguments against industrial

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<sup>1</sup> Switzerland, Teachers' Journal, 1884.

instruction as to assert that it develops the productive and material side of the child, to the injury of the qualities of mind, heart, and character, and that the new burden of industrial instruction would, from the double stand-point of knowledge and morals, — yes, indeed, *morals*, — be an injury to the quality of school-work. The last sentence is oracular in its obscurity ; however, if it have any meaning, the writer wishes to intimate that knowledge and morals may be injured by industrial instruction. Now, if we collect the statements of this opponent, we have the following complete contradictions, which, according to Goethe, are equally mysterious for the sage and the fool : —

“ Hand labor is for the child indispensable ; but its introduction into the school, not its exclusive dominion there, develops the child on its productive and material side, to the *injury of the qualities of mind, heart, and character*. *Hand labor constitutes a part of child nature* ; but its introduction into the school, not the exclusive pursuit of it, develops the child from its productive and material side, to the *injury of the qualities of mind, heart, and character*. The introduction of hand labor into the school is an ideal whose attainment is impossible ; but the introduction of hand labor into the school develops the child from the productive side, to the *injury of mind, heart, and character*. Hand labor has a moralizing effect ; but the introduction of hand labor into the school develops the child from the productive and material side to the *injury of the qualities of mind,*

*heart, and character*, and to the injury of his *knowledge and morals*. The benefit — benefit entirely general, then moral benefits not excluded — of *hand labor is indispensable*; by its introduction into the school, the poor children would be preserved *from the evil influences of cupidity, vagrancy, and beggary*; but its introduction into the school injures the qualities of *mind, heart, and character* as well as of the *pupils' morals and knowledge*. In regard to the future choice of a profession, hand labor would be of the greatest advantage to the poor child; but the introduction of hand labor into the school would result in *a superficial training of the young laborer for his future profession*."

But it appears that hand labor has all these evil, even dangerous results only in the school, for the worthy reporter at the Synod in Courtlery (Bernese *Jura*) thinks that school workshops, established by private individuals, if they were conducted with a separate programme, pursued side by side with that of the public school, would do good service.

"By the practical working out of what is conceived, the observation will be sharpened and strengthened."

"By means of representation, construction, the regular way for the creative instinct in the child will be pointed out. In this way the child secures an inner satisfaction which must definitely influence its disposition and character." "Joy in self-activity awakens }  
pleasure in labor? \ By one's own work, one learns to

value the labor of others, and in this way morality is promoted."

Again, this is not said by an advocate but by an opponent of industrial instruction, who, by "practical working out of what is conceived," and by "representation and construction," really means hand labor. A firm friend of hand labor could hardly assert more in its favor than this opponent has expressed. There, without if or but, the *disciplinary, educative, and moralizing* value of hand labor is acknowledged.

Nevertheless, industrial instruction is called a "doubtful experiment," which, on account of its "problematic advantage," cannot be included in the number of obligatory school studies.

What logic! It stands quite on a level with that of the opponents already mentioned. By labor, observation will be promoted, the instinct of activity regulated, the child inwardly satisfied, made happy, disposition and character trained, pleasure in work aroused, and morality promoted; but all this is of no benefit. Industrial instruction is a doubtful experiment, and its advantage problematic.

Every one will expect that such an opponent would exclude all forms and conditions of industrial instruction from the schools. But this is not the case. It is not only not rejected, but it is even demanded.

"In the elementary schools (from seven to ten years) a series of the Froebel occupations should be pursued, and in the grades of the real and secondary

school (from ten to fifteen years) no hindrances are to be placed in the way of the application of manual activity for the promotion of mental instruction."

Yet what but hand labor are the Froebel occupations? And from the expression, "manual activity," what but hand labor can be understood?

This opponent recommends what he opposes. What a contradiction!

"What is the benefit arising from a one-sided cultivation of the hand?" cries out the same opponent. Now, no one, not even the earnest advocate of home industry, demands a one-sided cultivation of the hand, but all wish to develop the mind as well. In accomplishing the latter, however, the hand is not to be neglected. We repeat that since the time of Diesterweg, the point at issue in the struggle against industrial instruction has been based upon the false supposition that industrial instruction consists in the teaching of some kind of trade, or at most of some single manual occupation. When will this error, which has prevented so many from perceiving the truth, disappear?

## CHAPTER III.

THE ECONOMIC<sup>1</sup> OBJECTIONS TO INDUSTRIAL  
INSTRUCTION.

## I. COMPETITION.

ONE objection to industrial instruction is, that in many trades it creates a dangerous competition. To his complaints against the competition of prisons, houses of correction, and orphan asylums, the mechanic would soon add one about the competition of the schools.

These objections are quite correct, and we have already referred to the over-estimate of the economic advantages of industrial instruction; but they are only right under the supposition that industrial instruction in the school would be pursued as factory labor, and that the public school would become a *manufactory* for the production of *playthings*, *brushes*, *straw* and *paper* wares, etc. Now, is that really to be feared? Certainly not. School-

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<sup>1</sup> We say economic, and not politico-economic, because the expression "political economy" is unsuitable. No educated people manage their economic affairs for themselves, but they have economic relations with many other nations, and no educated nation of the present time has yet brought the trade and distribution of labor products to an economic basis; that is, to a conscious organization of labor conducted according to certain principles.

houses will not become factories ; rather, factories will become school-houses. Whoever knows anything of the movement regarding children's labor in factories within the last thirty years will be freed from all anxiety regarding the possibility of child labor in the school being conducted after the manner of factory labor. Those only who are entirely ignorant regarding the great movement against children's labor, and who know no form of industrial instruction except that of Klauson Cass, and that in a form which misrepresents it and degrades it into factory labor, can have any fear of danger of competition. As long as factory labor is not transplanted into the school ; as long as no branch of industry apart from the aims of the school be pursued, provided, rather, that industrial instruction be pursued with special reference to the aims of education and instruction, it can no more create competition with trades than the *industrial instruction of girls has heretofore caused competition with dress-makers.*

Competition can only arise in a case where one is in a condition to produce more cheaply. Now it is clear (and by the opponents of industrial education it is made a prominent point) that a school which remains a school, and does not become a factory, cannot produce so cheaply as a large, well-ordered establishment which has the advantage of machinery and division of labor. This point is so clear and indisputable, that it requires no further discussion. If, however, it be asserted that industrial instruction will give rise to

competition in many trades, such an assertion rests on a false basis.

It is premised: —

1. That industrial instruction in the school be pursued as a kind of factory labor. Year in, year out, in some school, some special article will be manufactured: perhaps in one school, brooms; in another, straw rugs; in a third, pasteboard boxes; in a fourth, wooden plates, etc. Or again, that in all the schools, throughout the whole year, the same articles be constructed by all the children.

This supposition is entirely wrong. No one in his right mind would say a word in favor of such a general arrangement of industrial instruction, and not a teacher could be found for it. Such instruction would be in no way educative, but, like factory labor, would be stupefying in its effects.

2. Let it be assumed that the state and community would furnish material, tools, teachers, and places to work for such industrial instruction, and not concern themselves hereafter about the labor products in the mass. These would rather be sold privately,—by whom? Whether by pupil or teacher, no one knows rightly, and indeed, only at a price equal to the value of the materials used.

That this supposition lacks foundation must be clear to every one. We consider it an insult to a state and community of organized people (to which we teachers belong) to believe that they would be so short-sighted



as not to be concerned with the mass of labor products of the institutions of a state or community, or to undersell them, or to give them up to any kind of speculators.

These are simply inconceivable assumptions. No one sells privately labor products in bulk. For this, a large market, indeed, the market of the world, is needed. The products of wholesale industries cannot be undersold by an institution belonging to a state or community, or given over to speculators, without general indignation being raised against it by the injured party. Wholesale labor products could not, in any economically developed state, be furnished at the cost of the materials used, for this would lead to domestic bankruptcy.

A notice in Otto Salomon's "Labor and Public School," upon the labor school connected with the public school at Wenersborg, on Wener Lake in Sweden, wherein it is stated that the articles made will be sold privately and easily disposed of, because they will be estimated at no more than the value of the materials used, is greatly exaggerated, and has been simply transported into countries with developed economic conditions. But whoever has read this notice knows that there labor products, not in bulk, but separately, are dealt with. But the principal point is, Sweden is a country whose economic development is at least thirty years behind that of Germany and Switzerland. If we make use of the manifestations in Swedish

economic conditions as conclusions for Germany and Switzerland, we must be led into absurdities.

If a state and community once furnish for industrial instruction teachers, shops, tools, and materials, then they will concern themselves with the labor products, and make arrangements for their market and disposal as well. Since in the first place, pedagogical aims are to be reached by industrial instruction, and surely will be pursued in its interests, so a part of the labor products, indeed much the greater part, will find disposal in the interests of instruction. The other part can be offered in warehouses, and sold at market prices. No sensible administration of a state or community, in order to compete with a state or community, will go below market prices. Also, in order to avoid the opposition of small trades against the institution, the private labor schools should not sell more cheaply. One would not be tempted, however, to sell under the market price, for the production of the things would be much dearer than the products of trade, or of the manufactory. It has never yet been said that in the schools for spinning, weaving, carving, watch-making, the products could be made for less, and were sold at a lower price.

If one wishes to honor labor, then each article may bear the name of the maker, and the parents of the little artist may have the right of precedence in the shops where the products are sold. If the articles of his manufacture were really of service in the family, what a justifiable pride the child would experience!

That would be an inducement to do good work. But one could go still further with this inducement to honor labor, by having a sum recorded quarterly, according to the proportion of work done by each pupil, in a merit book, which would serve as a kind of testimonial. At the time of his leaving school, this amount, with interest, could be paid to the pupil, and might serve him as a means for securing further education. Such an arrangement would be suitable for public as well as private institutions, and indeed is already in operation in the garden labor school in Weimar.<sup>1</sup> By such a plan, the school would become a truly educational savings bank, and an economic means of education would be furnished the pupil, who by it would save for the bank what he himself had earned, and not what he without labor had received from his parents.

## II. SPECULATION.

The opponents<sup>2</sup> of industrial instruction say that because of the speculation involved in it, this branch of instruction is in danger of furnishing a temptation to take undue advantage of children's strength. They speak of industrial instruction itself as if it were a means for utilizing child-labor on a large scale, or as if it were an industrial pursuit by children. Now, we have already shown the entire incorrectness

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<sup>1</sup> J. Bühlmann, *A School Journey in Germany*. Zurich, Magazine, 1873.

<sup>2</sup> *German Industrial Journal*.

of the supposition that any manufacturing "business" by child-labor can be carried on in the school. In such a case, industrial instruction would have to become children's labor in school factories. But care is taken that this shall not happen. Even in this respect, the trees do not reach the skies. The beautiful time of child-labor in factories is greatly on the decline, and the humane world will soon have achieved its complete overthrow.

As we know, speculation deals with things subject to strong fluctuations in price, which yield more than the usual profits. But it must wait long before industrial instruction—even if pursued entirely in the sense of home industry—would yield the high profits of speculation. It must wait till doomsday, for, according to all human insight and foresight, this time will never come. *Industrial instruction will realize just about as little profit for speculators as does mental instruction.* Since speculators have so wide a field for their activity, it will never enter their minds to choose industrial instruction as an object. They have still a chance for profit in grain and cattle, wool and cotton, silk and hemp, railroads and steamboats, houses and lands, paper and rags.

### III. DIMINUTION OF THE NUMBER OF PURCHASERS.

An objection is made to industrial instruction on the ground that in a short time we should have nine tenths of the population producers and one tenth

purchasers. With the almost chronic failures in business, and the limited purchasing capacity of the people, such an objection weighs heavily, and with the credulous multitude its effect never fails. The position, however, is entirely untenable, and only arises from a total ignorance of economic relations. Setting the producer over against the purchaser is a novelty in national, or rather in political economy. Up to the present time we never knew that producers cease to be purchasers. In this connection, it was only known that under the control of moneyed production, through the constantly increasing application of machinery, the number of producers, and at the same time not the number of consumers, but their ability to buy, was diminished. Apart from the teachings of national economy, it is intelligible to common-sense that an increasing number of producers is in no way synonymous with a decreasing number of purchasers. On the contrary, if all have work, then all can buy, and business flourishes.

#### IV. MISCONCEPTION OF THE UTILITY OF DIVISION OF LABOR.

The opponents say that industrial instruction will lead to a misconception of the utility of division of labor, and hence to a retrogression in civilization. *What a mighty charge!* It means nothing less than that industrial instruction is inimical to improvement, to civilization. Let us at once remember that all true

progress has always been declared opposed to civilization, so that this accusation is in no way new. Just as little is it new that the charge is a simple assertion without proof.

It is hard to believe that any one could seriously assert that industrial instruction might lead to retrogression in civilization. Like Crusoe on his desert island, every man would begin again to supply the whole circle of his needs. Machines would become rusty, railroads and telegraph lines would tumble to pieces, steamboats would be replaced by dugouts, the breech-loader would be supplanted by bow and sling, while international commerce, travel, discovery, investigation, and humanitarian effort would give place to the splendid still-life of the cave-dwellers, or to the state economy of the Lacustrians, as yet untouched by the craze of stock speculation. Indeed, if we begin to misunderstand the advantages of division of labor, we cannot foresee where we shall stop.

But because in his youth a man has learned to guide the plane, the saw, the file, the drawing or the carving knife, is it inevitable that he will fail to understand this advantage? Has it ever happened that those men who have learned half a dozen kinds of handicrafts, or, driven by necessity, have been obliged to use them, have misunderstood the advantages of division of labor, or become Crusoes? Such people are just the ones to value division of labor, because they know how to appreciate more than one kind of labor. Because

in our youth we learn several kinds of hand labor, shall we not continue to be modern men, with all our strong desires for the gratification of our highly developed social needs?

Those who really fear that industrial instruction will lead to a misconception of the advantages of division of labor, appear to live in the exercise of a very artless and simple faith in the power of society to set aside at pleasure the laws of economic development. Men can do this as little as they can rise above the laws of nature. Both are inflexible, and sway with iron rule. While, however, man has made some progress in the control of nature's laws, he has hardly made a beginning in the control of economic laws whose governing power is in proportion to their immovability; so much the more unfounded is the fear of a misconception of the utility of division of labor as one of the most efficacious economic laws. We might as reasonably doubt the benefit of the sun's heat on account of steam and electricity. Division of labor is not a hypothetical expression, to be accepted or rejected at pleasure. No! it is a power which, like a power of nature, gains recognition in the economic world. Division of labor has swept away feudalism, and called civil society into life. It is a power which will bring civil society in its turn to the grave, and will create a new society, based upon organized manufacturing principles.

It is hardly necessary, then, for us to be anxious to advocate the recognition of such a powerful force.

A discussion of the great disadvantages of division of labor for the mental and physical development of workingmen appears to be a much more necessary task. Indeed, in manufactories, division of labor is carried so far, that a single workman can no longer construct a whole article, but only its thirtieth, fiftieth, one hundredth part, or perhaps the third or tenth part of a part.

It is only necessary to refer to watch-making, in which nearly every single part is constructed in special factories, and the labor of every part in each factory is again divided among many hands. The laborer no longer makes a part of a watch, but only a fraction of a part. In all branches of large industry the same principle of division of labor is observed. By this means, labor has become vastly profitable, and labor products astonishingly complete; but the laborer has become part of a machine, and the work has lost all its spirit. "Subdivision of labor is the murder of a people," says an English writer. Said Adam Smith, in 1766: "A man who spends his whole life in the performance of small, simple operations has no opportunity to exercise his understanding. He generally becomes as stupid and as ignorant as it is possible for a human creature to be." Yet at that time, division of labor, compared with its present state, had but a very limited development.

Would it not be a meritorious work to instruct our youth in the construction of whole articles, and thus



overcome the stupefying influence of division of labor, whose advantages our present civilization cannot and will not dispense with? Does not wisdom, as well as duty, command us to give those thousands who may be condemned to spend their lives in the tread-mill course on simple, or, perhaps, upon a single spiritless operation, an insight into the attractive, satisfying, and educative side of labor?

## CHAPTER IV.

## THE PLAUSIBLE AND LEGAL OBJECTIONS TO INDUSTRIAL INSTRUCTION.

## I. THE CHILD'S INCLINATION FOR ACTIVITY IS SUFFICIENTLY CULTIVATED IN THE FAMILY.

A CORRECT solution of the problem as to the necessity for industrial instruction in public education is only possible on the ground of an exact knowledge of social relations and their influence upon family life. The knowledge of these relations is, however, to educated people mostly a *terra incognita*, because they trouble themselves but little with the study of political economy, and still less with that branch of it which treats of social relations. This is explicable and excusable on the ground that this study has no direct practical benefit, and on every side is attended with difficulties.

Out of this ignorance of economic social relations arises the lamentation, over the decline of the beautiful customs of the Middle Ages, according to which the son learned mostly from the father his own art or handicraft; and the daughter, even in the noble families, was instructed by the mother in the management of the

household. With the same reason, we might lament the decline of knighthood of Latin and Catechism schools, of the guilds, and indeed of all mediæval conditions. All these institutions were merely the expression of mediæval social relations, in the widest sense of the word. These lamented customs in particular were nothing but the result of the manner of labor in mediæval times, which, being confined to small trades, was intended for the circle of the home, the village, or the town, and through which (*i. e.*, manner of labor) the products were strictly regulated. In proportion as the mediæval system of production disappeared, and made way for modern methods, so the custom of the son learning a handicraft from his father declined. In the Middle Ages, the son could very well learn a trade from his father, because the father generally pursued independently some trade or profession; but at present, among the majority of fathers, this is no longer the case. In the Middle Ages, the son learned a handicraft from the father, which was desirable, as it offered a certain means of existence and a respectable social position, and because it was often somewhat difficult to secure a footing in any other trade or profession. In no case was a change so advantageous as the simple continuation of the fraternal employment. In consequence of division of labor and the introduction of machinery in large manufactories, all this is changed to-day. No one who appreciates existing economic relations will pipe a dirge over the decline of mediæval customs resulting

from mediæval systems of labor, but through the legislature and the laws of the country he will seek to secure to public education conditions adapted to existing economic relations. There are, it is true, people who believe in the wisdom of returning to mediæval systems of labor, and who will support efforts in this direction, but the folly and impossibility of carrying out such an idea are too patent to need a word of discouragement.

Although individual opponents of industrial instruction themselves acknowledge that domestic instruction fails to awaken the child's love for labor, yet they assert that the instruction of children in labor does not belong to the school, but on principle to the family. Unfortunately, they forget to give the *chief reasons* for this, their principal demand. Perhaps this, also, would have its difficulties, and very probably it would appear that the arguments which relegate manual instruction to the family would show more conclusively that the mental instruction of the children is also the business of the family, rather than of the state. In this way, reasons for the abolition of the public school might be furnished, and the darling wish of certain people might approach a little nearer realization.

Here, also, we have contradiction and inconsistency, for the same men who assert that industrial instruction is the work of the family, demand of the school that it shall introduce the child to the real world, and shall elevate and spiritualize labor, and thus awaken pleasure

in it. If industrial instruction becomes on principle the affair of the family, how is the school to spiritualize labor? By what better means than by labor can one be introduced into the real world? How can labor be better elevated than by being introduced into the school, and how can it be better spiritualized than by being united with theoretical instruction? Every other elevation of labor must lead to inactive enthusiasm, which is, of course, much more comfortable than action, and any other spiritualization of work must, on the part of the teacher, remain mere dead verbiage, and must lead the pupil to idle chatter. If they have babbled about labor, the children will believe they have really worked.

Individual opponents to industrial instruction assert that in a well-regulated household there is no lack of suitable work for children. Hence, the housekeeping of a large class of factory laborers and that of a great part of the laborers in home industry, as well as that of artisans, is called disorderly; for, as a fact, in those households, suitable employment for the children does fail, and can not in any way be provided. If a man does not know, or if he ignores social relations, to what false conclusions may he be led! If factory laborers are constantly from home, how can they in any suitable manner find employment for their children? How can the laborers in many branches of home industry suitably employ their children at home? For example, in weaving, when all the winding and spooling of yarn are done

by machinery in the factories? And where this is not the case, can all the children be employed in winding and spooling, or is winding and spooling such suitable employment for children of all ages and capacities that the opponents of industrial instruction would choose it for their own children? Since artisans must spend almost every waking moment at their own work, how can they employ the children in suitable labor? The discharge of household duties does not suffice to provide suitable employment for all the children, and is not adapted to the needs of all. But why do we speak only of the so-called lower classes in society? What suitable domestic employment can be provided for the children of the higher classes, since among them the household labor is performed almost entirely by servants? Consistency must oblige the opponents of industrial instruction to consider the households of the higher classes also disorderly and ill-regulated. We do not take this ground, but, in justice to the working classes, it deserves at least a passing mention.

While a portion of the opponents of industrial instruction themselves acknowledge that domestic education does not awaken in the children a love of labor, others oppose industrial instruction, in that they show that under normal conditions, if the children are trained at a sufficiently early age, labor in the family does awaken a pleasure in work. Under one form or another, this objection is made by all the opponents of industrial instruction. Individual opponents, infected with the

universal social reform idea, show that already the working classes labor too much rather than too little, and, besides this, are very badly fed.

This last proposition is at any rate correct. The laboring classes are not at the same time the enjoying classes, although Christian teaching declares that "he who does not work, shall not eat"; but it is a mistake to say that under normal conditions the work in the family awakens a pleasure in labor.

The normal, *i. e.*, the usual case is rather that the family represses the child's inclination for activity, or at best cultivates it in a one-sided manner.

We do not on this account complain of the family, for we also consider the family of the present day as a product of existing social and economic conditions which lie beyond the province of the individual family. We merely assert facts.

What is life? We do not know; we know only its appearances. According to those appearances, however, life is motion, — motion of muscles and nerves. What is child life? Quickest movement, because quickest development. Hence the irrepressible instinct of children towards movement and activity; hence their happiness if they can employ themselves, and their unhappiness if they can not. Naturally this instinctive activity is as yet entirely unregulated and purposeless; according to the conditions of the child's surroundings, it may become a creative or a destructive impulse.

The view of life, according to which mankind is bad from youth up, presupposes an inborn destructive instinct. We assert, however, that among normal human beings there is no inborn destructive impulse, but rather an inherent instinct for activity, which, if it be not educated into a creative power, easily takes the direction of a destructive influence, which is merely activity with a negative result.

For the rest, many and various pleasing and praiseworthy impulses of the childish soul lie at the bottom of what are usually termed destructive instincts. The child does not love movement merely as the expression of its own strength and life, but he loves it in things. Hence his pleasure in everything that has motion, and his effort to produce motion in motionless and inanimate objects. For this reason, the child has a much earlier interest in plants than in stones, and a still earlier interest in animals than in plants. Hence his efforts to make things walk, fall down, get up, fly, etc. But our beautiful playthings do not stand the child's experiments; they are destroyed. The child destroys them, however, not for the mere pleasure of destroying, but because of his pleasure in motion. Because the child loves movement, it also loves change, which indeed is only a form of movement, and this also the child loves not only in his own person, but in things. Objects must change; they shall not remain as they are. In his efforts to procure a change, that is, to make something new, the



child tears the legs off the doll, removes the wheels from the wagon, and kneads the wax figures out of shape. The instinct of work and construction, being yet entirely raw, demands employment and guidance, and destroys because it cannot create, or because the unsuitable playthings can bear no change nor reconstruction. For early childhood, those playthings are the best which admit of the most changes, while those with which the child can do nothing without injury to himself or them are comparatively worthless.

Finally, the child destroys things because the outside is not sufficient to satisfy; he must see the inside, must learn the nature of things. The instinct of knowledge and investigation is beginning to move him.

A normal child, whose instinct of activity is in some degree under control, will never destroy for the mere pleasure of destroying, but always from some higher motive. Hence this tendency towards destruction must not be suppressed, but trained, and it will return to mankind fruit a thousand-fold.

As little as we acknowledge an inborn destructive tendency among normal human beings, so little do we admit an inborn tendency to laziness. Laziness (*i. e.*, a dread of every kind of physical and mental exertion) contradicts the laws of physiology. It is a psychopathologic condition, and menaces life itself. But laziness, as a dislike for useful manual labor, *arises from the suppression and non-improvement of the tendency to activity in children*, and from a lack of respect for

manual labor in the practice of domestic and social life. As John Stuart Mill says: So long as the results of labor are divided in almost completely reversed relations, and the greatest share falls to those who have never worked at all, the next greatest to those whose work is for the most part merely nominal, and so on, until at last the most fatiguing and exhaustive physical labor cannot with certainty be depended upon even to gain the most common necessities of life, — so long as this relation between labor and the distribution of property prevails practically in social life, so long will people seek to avoid labor. Laziness, as a dread of the labor which benefits society, is therefore a social pathologic manifestation. However, at present, we are only interested in the cause of the malady, which has its origin in the non-employment and non-improvement of the child's natural inclination for activity.

In regard to this cause of idleness, it is truly surprising that laziness does not exist to a greater extent in our social life, for as a result of existing social relations, the childish tendency to activity is almost entirely suppressed, or at least has received so little guidance in the direction of creation, that it is surprising that men are not more destructive than they are. How is it with the education of children, in the greatest number of cases, among factory laborers, small farmers, and the workers in small handicrafts? Both father and mother must pursue their trades. There is hardly time for attention to the most necessary duties, to say

nothing of education. This explains the fact that mortality among the children of the poorer classes is three times as great as among those of the richer. Under such conditions, it is plainly useless to talk of the right guidance and development of the instinct of activity and the proper employment of children. Who has time for these things? The children are left almost entirely to themselves.

Even if there were time, who has the necessary intelligence and skill? In the public schools, the girls receive no instruction concerning the education of children, and schools for the higher development of women are as yet a beautiful dream.

[True of Germany, and to an extent of Switzerland.]

Finally, even if parents possessed time and intelligence sufficient for the right guidance and satisfying of the child's instinct for activity, in ninety-nine cases out of a hundred, means, material, opportunity, and place would be wanting.

Supposing the employment makes a noise, then the papa, the next-room lodger, or the tenants below will be disturbed, or the landlord will not allow it. Supposing it makes no noise, but perhaps some untidiness, then on account of the room and furniture it cannot be allowed. For the pursuit of certain employments, place and light are necessary, but in small rooms both of these are wanting. Older children need tools and materials; they cost money, and cannot always be procured. In the open air it is as bad as in the

house, for there is no place where children can employ themselves.

In most cities we have beautiful promenades, but in most cities we have not a single place for children's plays or employments. Sit on the bench! Do not run on the grass! Gather no grass or flowers! Don't touch the sand or stones! These are the commands which must constantly be given to children in the beautiful, well-kept promenades. What tiresome promenades for children! They can make nothing, can do nothing; and they would so gladly make a hill of sand, dig a hole, or lay out a garden! Everywhere the hindrances described here to suitable employment for children meet us; not only among the lower, but in the middle and higher classes.

Where is the merchant's, the official's, or the professor's family in which all conditions for the guidance and gratification of the childish inclination for activity are possible? Almost always, intelligence and capability, frequently time and not infrequently opportunity and place, are wanting. Everywhere, wherever our changeful life has led us, we have found a lack of suitable employment for children. Are not the many expensive playthings, with which children can do absolutely nothing, a proof of the lack of suitable employment? Or is the literature for children from seven to twelve years of age a suitable employment for them? Novel-reading children of this age are the result of an entirely arbitrary, unnatural education. The best chil-

dren's literature that we have is far from being good enough to be considered suitable employment for children.

Be still! Go out! Take a book! Learn something! In even good families these are the commands by which unemployed children are guided.

If, perhaps, the children demand some employment, they are met with, You can't have that! Leave me in peace! I must work! I have no time!

In this way is the instinct of activity suppressed (especially for the first six years), or left entirely unsatisfied and unguided.

What is the result? The children become inert and unsteady, and acquire a hundred bad habits and faults. Nearly all wrong habits and faults of children are owing to lack of suitable occupation. In school, the best means of discipline is to employ the children suitably. The teacher who understands how to employ the pupil, and by the employment to keep him interested, has hardly any need to use any other means of discipline; while the one who does not understand this art, is unable with all his severity to curb the unmanageable, idle, stupid scamps.

*Employ the children suitably, i. e., according to their powers and inclinations, and hundreds of pedagogical arts and tricks for preventing and subduing moral delinquencies will be unnecessary.*

That the children of the laboring classes work too much is quite true; it is only wrong to assert this fact

as a proof that in the family the pleasure in labor is sufficiently awakened. Do we not know that in the case of too much work, the pleasure is changed into aversion? As we have just shown, in these children the instinct of activity is stifled before they are fitted for special labor. Is the same monotonous labor, which, year in, year out, the family is able to furnish, according to the capacity and needs of the child? Certainly not! It can awaken no pleasure, but must create dislike. Then how many families are capable of furnishing their children regular employment?

And if, as an opponent of industrial instruction mentions, it happens that an excess of work is united with want, will that create pleasure in labor? *Certainly not.* Besides, domestic labor lacks one of the most important elements of pleasure, viz., the *society of laborers of the same age.* It lacks also the attractive method and theory which would make it significant and interesting. The family does not understand the art of instruction; the instruction does not proceed methodically from the near to the remote, from the simple to the complex, hence the work becomes to the children either distasteful, because the labor is beyond their strength, or it is tedious, because it affords too little activity. For everything which exceeds our physical or psychical powers creates dislike, while everything that does not demand sufficient activity becomes tedious; we must avoid both extremes. Without theory, labor degenerates into me-

chanical, uncomprehended, uninteresting activity; for one is only interested in what he understands, and one is elevated by labor only when he is conscious that he accomplishes it according to underlying laws. Finally, domestic labor, because of its one-sidedness, does not require the exercise of heart, taste, and imagination. These must be disregarded, because there is merely an economic and not a pedagogical aim. For this important reason, labor in the family cannot be sufficiently attractive for the children.

*Labor in the family can, therefore, awaken little or no delight, but, on the contrary, it often creates abundant disgust. Instead of satisfying the child's inclination for activity, it much more frequently suppresses it, or not infrequently misguides it; and in consequence of our social conditions, it is not at all capable of rightly guiding or educating.*

Granting, however, that the home does develop and train the child's inclination for activity, still we cannot dispense with labor in the schools, because it belongs to the harmonious development of mankind, and is an important means of training and education.

## II. THE FATHER SHOULD INSTRUCT THE SON IN HIS HANDICRAFT.

This objection is raised against industrial instruction. They say the father understands his handicraft and its needs, hence he will be the best teacher for his son. This argument entirely misses its aim, for industrial

instruction in the public school does not and can not imply instruction in any particular kind of handicraft. Industrial instruction and professional or trade instruction are here confused. The objection in no way touches industrial instruction, but meets the opponent of industrial instruction who at the same time is an earnest advocate of special trade instruction. If, indeed, the father were best fitted to instruct the son in his handicraft, of what use is departmental training? Why is there a call for school workshops, professional museums, and other institutions of this nature? The question, indeed, of professional training is answered in the simplest manner.

Yes, if it only were. But it is not, for a proposition which presupposes the practice of mediæval small trades, will not solve either the question of professional training or of industrial instruction. Diesterweg, who in 1851 raised a similar objection to industrial instruction, would hardly advance it now, if he saw how the manufactories have increased and small trades have diminished. During the last thirty years the industrial development of Germany has made such progress that she has outstripped France, and to-day is abreast with England. Now, if, notwithstanding the completely changed economic conditions, the same objection should be advanced, this only proves that not only the Bourbons, but other people as well, possess the peculiarity of forgetting nothing, and also of learning nothing.



In the foregoing, we have explained why the son can not learn a handicraft from the father, and why he does not, even if he could. We refer to what has previously been said. Here we make only a few remarks.

How often does the son learn a handicraft from the father? Rather seldom. And if he does learn it, is the father always the best instructor? As a rule, no.

Besides, does the mechanic understand the theory of labor? Usually not. Then, what is the nature of his instruction? A mechanical imitation of a pattern or copy, similar to former methods of teaching and learning writing.

And finally, if the father always instructed the son in his handicraft, to what should we come?

Directly to the condition of caste, and of Chinese civilization.

Verily, a brilliant prospect !

### III. COMPULSORY INDUSTRIAL INSTRUCTION WOULD INTERFERE WITH THE PARENTS' RIGHTS.

Industrial instruction should be left to the free judgment of parents, for if it should be made compulsory, it would be an illegal interference with parental rights, and an encroachment upon their personal freedom. So say the opponents of industrial instruction. Although Diesterweg himself raised this objection, it is nevertheless untenable, for if the state (as a totality of all the citizens) fulfils the duties which it is impossible for individuals to discharge, there can be no infringement

of personal rights. We have, however, shown that the family is not in a condition to properly educate the children in labor. But, admitting that the family may be capable of instructing the children, it could not be considered an infringement upon parental rights, if a majority of the citizens should find that the state could better perform these important tasks than each individual separately, and if the majority should decide that the state should undertake this department of education, as well as theoretical instruction. Besides, we may be perfectly at rest. The objection to compulsory industrial instruction, on the ground of interference with personal freedom, would be much fainter than that which has been and is still being advanced against mental instruction in our present schools. In any case, it would not be raised by the laborer and mechanic, in whose name the schoolmen at present make it effective. They would be heartily glad if their children were employed with hand labor in the schools, and so better prepared for life than they are or can be by existing school instruction. We have not yet learned that the introduction of industrial instruction for girls has in any place raised such a storm as has upon occasion raged against the introduction of a new method of teaching religion, history, or natural science. Just as little will industrial instruction for boys raise a storm. As to the necessity for labor for all mankind, there can be no difference of opinion; while in matters of religion, history, philosophy, systems of

teaching, etc., the field for discussion and disagreement is abundantly large. Industrial instruction is throughout a neutral territory, in which no father's private convictions will be attacked, except it may be on the ground that his son is too good for labor. Whether society is obliged to conform to such a barbarous opinion may be decided without consulting the prominent publicist.

We are accustomed to hearing charges against the school, on the ground of arbitrary encroachments upon parental rights, either from people who are opponents of the modern state, or from those who understand nothing of the necessary foundations of a commonwealth, or from those egotists who derive benefit from a commonwealth, but are willing to sacrifice nothing for it. It would be, however, extremely surprising and directly against the interests of the teacher's position, as well as against the interests of the school, if the advocates of the school should play this trump against industrial instruction. Is it not plain that it can with greater right be advanced against theoretic instruction? This objection is really an old rusty weapon brought out of a mediæval armory. Industrial instruction can be left to the judgment of the parents as little as can theoretic instruction.

Why are all instruction and education not left to the choice of the family?

Certainly for the following general reasons:—

1. Because the parents have for this work neither

time, desire, skill, means, nor place, and because it would be a waste of human strength and a pedagogic crime to educate each child alone. For the education and training of each child one man would be needed, and also, one man would be required to educate another.

We have, however, shown that parents lack time, desire, skill, means, and place for the employment of their children; and it is clear that it would be in the highest degree unprofitable and unpedagogic, even quite impossible, to suitably employ each child separately. With the same outlay of time, strength, and means required for the employment of one, twenty can be employed; and besides, children are really the best educators for each other.

2. Because the highest interests of society demand that every man shall possess a certain amount of mental training, as well as those notions and ideas which are necessary for the preservation of society. A common social life without a certain standard of education for all the members, and without a common world of ideas and thoughts, is quite impossible. Every society in which the differences in education between its individual members are too great, falls to pieces; and every society in which the mass of common ideas and thoughts becomes too small, or where among individuals the ideas and thoughts are too different, must be dissolved.

Modern society, which does not exist by conquest

and plunder, but is based upon labor, demands for its own interests that every one shall possess a certain amount of practical education in labor, and shall have a general understanding of the whole world of ideas and thoughts which are based upon labor, because those ideas and thoughts resulting from hand labor are most important and indispensable for the successful social life of mankind. Hence, society must manage that each of its members shall be able to acquire those ideas and opinions. Its interests demand this. For this reason, industrial instruction cannot be left to the judgment of the family; it must become the business of the state, and must be compulsory for all. This is the principle. How this principle is to be transposed in the practice, is another question. We are not so unreasonable as to advocate at present the introduction of industrial instruction as a practical demand of politics, since at present teachers lack the power, facilities, will, and intelligence necessary for the accomplishment of such a measure. But what we advance as a requirement of the present is, that the educational authorities shall raise, support, and forward efforts for the promotion of the demands of industrial instruction by means of the state.

If the state does this, it only promotes its own interests, for it is entirely wrong to interpret the expression "the interest of the state" in education as applicable only to purely mental culture, especially as purely mental culture is a nonentity, and man is not to

be divided by pedagogy into body and spirit, but to be comprehended as a unit. Besides, pedagogic state practice has long ago overthrown the position that it must concern itself merely with the mental cultivation of its members, since it has long ago introduced gymnastics. The principle, if indeed it ever existed, has been violated, and we cannot ask that the practice be continued. Gymnastics serve essentially for physical development. Now, if industrial instruction be demanded as an extended means to the same end, it can not be opposed with a reference to recognized and uniform principles, but must be contested with plausible reasons.

"Since one aim is set before the whole state, then all its members must necessarily have one and the same education. The care of this education must be a common one, and cannot be left to individuals." So said Aristotle. He did not say it, however, in regard to mental education, and, indeed, it is satisfactorily known that the Greeks bestowed even greater attention upon physical than upon mental development.

But the state has not merely such an interest in industrial instruction that it could without injury get rid of it, but it has the interest of self-preservation, which is indeed synonymous with the duty of self-preservation. Furthermore, it is the duty of the state to furnish an education in labor to all those who, beyond their physical and mental powers, possess no means of supporting existence. For the sup

port of our opinions, we can cite an authority (if, indeed, authorities are necessary), to whom no greater can be opposed, viz., Pestalozzi. In his views upon industry, education, and politics, he expresses himself as follows: "Property is an artificial creation of society to elevate and advance the welfare of our race, by means of the greater productiveness of the earth.<sup>1</sup> As the result of natural, necessary arrangements for its security, this property has made the great majority of mankind propertyless; and the greater and more refined the artificial conditions of the human race become, which arise and must arise for the security of property and all prerogatives and enjoyments of its acquisition and possession, so much the more must the number of poor and propertyless men in the country increase, and so much the more certainly out of these conditions must arise a state of affairs in which nothing for the guarantee and preservation of human existence remains to the great majority of the people but the application of their physical and mental powers, upon which they must depend as their only means of self-preservation. But this resource, from its nature, remains without beneficial results to the propertyless man, so long as it is not accompanied with arrangements and means that may secure to him a certain degree of cultivation of his powers and talents, which stands in satisfactory relation to

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<sup>1</sup> Pestalozzi's Works, Vol. IX., p. 100.

that artificial power and skill which are necessary in satisfying the essential needs of human existence.

"So long as this is not the case, so long as this common dependence upon his powers and talents is not accompanied by such arrangements for the development and cultivation of the same, then it is itself illusory and deceptive. The powers and talents of human nature are transformed into skill only by means of a sufficient development and cultivation calculated to create capability for man in a social condition, which may be used and applied in such a way that its results may be regarded by the propertyless man as a compensation for the lost shares of the profits of the earth. *His claim to a sufficient means for the development and cultivation of these powers is therefore indisputably his civil and social right.* It is his only visible means for securing the essential needs of his human existence, and the only way by which, in harmony with the public right of the civilized world, he can penetrate into the art and means for the great world-movement of self-preservation [struggle for existence], and of the general manifestation of the well-being of our race. On the wide sea of this world-movement, it is the only point at which he is allowed to throw out his hook, and to try whether in the million-fold riches swimming around him some small fish may perhaps desire and bite at his dead bait.

*"Meanwhile the claim of the propertyless man to social aid for the development of his powers and talents is not*



*only for himself an indisputably social life; it is quite as indispensable for the man of property. Without the recognition of this right, the artificial condition of civilization itself has no just and natural basis."*

It might be objected that in the foregoing, Pestalozzi does not really demand that the state secure training in labor; but there can be no doubt that, by the training of the physical powers in skill, Pestalozzi understands training in labor. All Pestalozzi's work goes to show that he has never regarded the education of man as merely mental training, but as training of the whole man. The one-sided mental training of our present pedagogy is entirely foreign to his comprehension of the subject. Again and again he demanded harmonious development, and side by side with moral and mental training constantly emphasized training in labor and art. To him, harmonious education without education in labor was inconceivable. In the most bitter and drastic manner, he complains that European governments have done nothing for the industrial education of the people. He says: "It is true that what no father would fail to do for his son, what no master would fail to do for his apprentice, the government has failed to do for its people. In regard to the training in skill which a man needs in order to attain an inner satisfaction by the good management of his essential affairs, no European nation enjoys even a trace of public or general government influence; there is no public training in skilfulness except for manslaughter,

in behalf of which the military organization devours everything that is due to the people, or rather that the people owe to themselves." <sup>1</sup>

Here Pestalozzi very definitely demands that the state shall undertake to provide for the education of the people in labor. He will not have this provision limited to the lower orders, but will have it extended to all the people. The legal foundation of this demand is especially interesting, for the reason that the previous development of private fortunes, as well as investigations into original property by Laveley,<sup>2</sup> have proved Pestalozzi to be right in his comprehension of the rights of property. On this account, Pestalozzi would, more than ever before, demand state education in labor.

#### IV. THE RURAL POPULATION REQUIRE NO INDUSTRIAL EDUCATION.

The opponents of industrial instruction raise the above objection, because they do not or will not know that it is not only a counterbalance for one-sided mental culture in youthful education, but it deals with mental development and character building. They say, "Where children have a long distance to go to school, and where work about the farm is to be performed, there is no danger of excessive mental development and physical

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<sup>1</sup> How Gertrude teaches her Children, from the original text. Pub. Karl Riedel, Vienna, 1887.

<sup>2</sup> Property, and its Primitive Forms. Paris, G. Ballière, 1874.

stunting ; at the most this danger only exists in cities.<sup>1</sup> Furthermore, what benefit will it be to the farmer children to learn to plane and glue, to turn and carve? They do not need it at all, and later, cannot use it. What they need, however, is to thrash, mow, sow, and plough, and this they will not learn by industrial instruction."

Both objections leave untouched the educational value of industrial instruction for mind and character building, and neither disputes its worth as a counterbalance for a one-sided mental development. They are, therefore, plausible objections, without any fundamental signification. And what plausibility it is!

The first indirectly admits the necessity for industrial instruction in cities, and leaves entirely unanswered the difficult questions whether a one-sided mental development does not in every case injure physical development; whether a one-sided mental development in childhood does not injure the whole mental development; whether that is the right pedagogy which almost exclusively cultivates the mental powers, and leaves the culture of the physical powers to accident; and whether the present mental development in the schools is the most complete and the best.

What will industrial instruction benefit the country children, and to what purpose will they employ their learning? What a question! One can hardly under-

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<sup>1</sup> Swiss Ed. Journal, 1884.

stand how it can be put by schoolmen and by people who have any knowledge of life. Let us turn the lance, and ask how theoretical, abstract, mental instruction benefits country children, and to what purpose will they apply their knowledge? How will geography, history, grammar, and poetry benefit them, and to what purpose will they apply this learning? Truly, if only those studies could be pursued in the school which would benefit the country children, which would offer them as future peasants direct material advantage for practical small farming, then there would remain little more than the mediæval triad, — reading, writing, and arithmetic. Since the opponents of industrial instruction inquire after the direct material advantages resulting from training in hand labor, we must also inquire after the direct material benefits resulting from the present subjects of instruction.

It is clear as the sun that, on the basis of direct practical benefit and direct practical realization of the same, industrial instruction must be preferred to theoretic abstract instruction, for, especially for the small farmers, this benefit is, without further demonstration, apparent to every man.

Poor industrial instruction in general is in a bad way. On the one side, it is opposed because it is of no material benefit to the scholar; on the other, because it makes pupils and parents too materialistic and avaricious, and threatens the ideal conception of life. If, by skilful management, industrial instruction escapes

the Scylla of uselessness, it immediately falls into the Charybdis of profit; escape is impossible. The Jew must be burned!

Until now, personal material benefit has never determined the choice of subjects of instruction, but the choice has been relatively determined by their educational, moral, and social values. Personal material benefit can never be made a general criterion for the reception or the rejection of a branch of instruction in public education, because that which benefits the individual may injure society, and, conversely, that which is very important to society may be of indifferent worth to the individual. Thus instruction in history as well as teaching in the whole domain of social duties is for state and society of the greatest importance, but for the individual completely useless, unless he expects to become a teacher of these subjects. In private education, personal material benefit may determine one's choice; in public education, on the contrary, it only comes under consideration in so far as it is of benefit to society; only the latter is determinative. Social benefit, however, is often covered by moral and pedagogical [educational] utility. Even in private education, the direct material benefit is a very uncertain standard. Whoever applies it to subjects of public instruction only, shows that he has never reflected upon the difference between private and public instruction, and upon the principle determining the latter.

*Industrial instruction can not be opposed on the*

*ground of private education, but only on the basis of public education, and one must present social, moral, and pedagogic arguments against it or remain silent.*

Hence, the question regarding the future application of what has been learned can be no reason for the rejection of a subject of instruction from the state school, because the modern state rightly knows no fixed classes and castes, and no one knows what places in life the children must and will fill. A subject of instruction in the state school can, therefore, only be tested on the ground of benefit which it can and does give to the individual for his life in society. It cannot be estimated according to the benefit which the individual, as a member of a certain class, will receive from it. Whoever estimates it in this way, removes himself from the foundations of the state, viz., equality of civil rights, and places himself on the basis of the mediæval state, viz., difference of classes and inequality of rights. With the cessation of fixed classes in the state, the education for them must also cease, and indeed, in the public school it has ceased in so far that subjects of instruction are no longer considered in regard to the advantage resulting to classes. If we wish to estimate the subjects of instruction in the school for study on the basis of advantage for laborers, hand-workers, and farmers, of the majority of the nation, then everything must give place to industrial instruction, for to all these men, labor, skill, and intelligence in these things are of the greatest importance. On the

other hand, if we estimate subjects of instruction according to the benefit which they bring to the individual for life in society, again industrial instruction for these classes must be placed at the head. Out of respect for the reading world, we do not trouble ourselves with extravagance, such as, from industrial instruction one does not learn to labor,<sup>1</sup> for they are too absurd to be disputed. We might as well say that by instruction in reading, we do not learn to read, nor by instruction in swimming, to swim, etc., etc. Upon what educational, moral, and just grounds could one support an argument in advocating the education of a laborer's child for a future laborer, the child of a farmer for a future farmer, the child of a mechanic for a future mechanic? To-day, when legal barriers between individual classes do not exist, and any man can easily pass from one over into the other, — to-day, when every man carries the marshal's staff, so to speak, to the social step-ladder in his pocket, would not such an education of youth be the purest Chineseism, an oppression of youth and a sin against the human mind? Have not the majority of great men come from the lower classes? Were not the great manufacturers of to-day laborers? Has it not been ascertained that by far the greater part of personal property does not go down to the third generation?<sup>2</sup> Because of the great

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<sup>1</sup> Meyer, Handicraft Instruction.

<sup>2</sup> The Labor Question, by Fred. A. Lange. Winterthur, by Bleuler, Hansheer & Co., 1875.

tendency toward change in our social strata, labor becomes an anchor of safety even to the rich.

If it is specially asserted that industrial instruction is of no value to the children of farmers, then we must ask, what is open to the farmer burdened with debt, or even the well-to-do land-owner with three or four sons? Will he give each a farm or capital sufficient for one to live on the interest, or will he have them all study? All those farmers' sons who are not eldest born, and have several brothers and sisters, and whose parents are not rich, must apply themselves to industry. The little property cannot bear division; it would no longer support its owner. Even if it were large enough to allow it, division must be guarded against, because in farming, as in other industries, only the large business is profitable and capable of standing competition. Now, provided industrial instruction should only be regarded as a general professional preparation, even then for a large number of farmers' sons it would be of great benefit. It is also advantageous to those sons of farmers who devote themselves to farming, in that it makes them acquainted with industrial labor, teaches them to love and respect it, enlarges their intellectual horizon, and induces greater mental activity. For the immediate execution of repairs upon farming implements and household furniture, the skill gained by industrial instruction will be an advantage.

The same reason for refusing industrial instruction for the farming population would justify us in refus-



ing for the laboring population instruction in botany, zoölogy, and agricultural chemistry. If these subjects of instruction are necessary for the industrial population, in order that their horizon shall be enlarged beyond the nearest interests of their calling, and in order that they shall not be utter strangers in the world of nature, then for the farming population industrial instruction is necessary, that their views may be extended beyond agriculture, and that they may not be obliged to wander as total strangers through the world of industry and technology.

That industrial instruction does not teach thrashing, mowing, and ploughing is no argument against its benefit, but against its completeness. Doubtless, agricultural labor has also great educational value, and certainly we cannot consider that to be an ideal education which is separated from agriculture and practical employment with nature; but we cannot deal with this question here, and have only to remark that the educational value of thrashing, mowing, and ploughing is extremely narrow, and for every one who is educated to labor, the learning of these arts is very simple. Even if agricultural labor were included in industrial instruction, we should oppose it on the ground of its being too mechanical. *All labor is not educative; that only is so which is pursued pedagogically; that which is pursued mechanically is stupefying; and mechanical employments, even when pedagogically pursued, are of comparatively little educational value.*

## CHAPTER V.

THE OBJECTIONS OF EDUCATORS AND SCHOOLMEN TO  
INDUSTRIAL INSTRUCTION.I. THE AIM OF THE SCHOOL AND OF INDUSTRIAL IN-  
STRUCTION.

THE opponents of industrial instruction prefer to speak of incidental matters, and remain eloquently silent upon essential points. They ridicule the one-sidedness of the pedagogically uneducated friends of this subject; they criticise the incompleteness and the material benefit; they look at the economic results with the microscope, and prophesy the ruin of hand work and of culture; they speak of the violation of personal freedom, and above all, they see no possibility of practical accomplishment; they discuss all these incidental points in detail, but no one speaks even incidentally upon the essential points. *Not a single person considers the question whether or not industrial instruction is necessary for the harmonious development of mankind. Not a single person shows that labor, according to its nature and influence, may for the education and training of mankind be dispensable, superfluous, or even injurious.* They all go round this

principal question like the small relative of the large lion round the hot soup.<sup>1</sup>

*So long as this fundamental question in its proper sense remains unanswered, the assaults of opponents are merely entertaining skirmishing, without any kind of decisive force.*

All opponents of industrial instruction acknowledge the justice of the demand for harmonious development, or themselves make this demand; but while the majority trouble themselves to prove that it is already supplied by the present school, at least one has felt the risk of such an assertion, and hence he declares that "the school is only a factor in the process of human development," and that "its task is abstraction."

In conformity with the demand of the school law in the canton of Zurich for harmonious development, the aim of the public school is *to train the children of all classes to be mentally active, socially useful, and morally religious*. [In the bill by Thomas Scherz, it stands *morally good*.] The public school will now have a brand new aim, viz., training in abstraction, which may be supposed to mean idea training [idea building].

Let us for the moment accept this new aim as correct, then the question arises as to how the school will fulfil its purpose; how shall it instil ideas into the children? Our opponent does not discuss this

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<sup>1</sup> Report of Proceedings of Zurich School Synod, 1882.

question. If he thinks the education in ideas should be pursued differently from what it has been up to the present time, he ought to have said so, in order to justify the definition of his aim. If he thinks, however, that it should be pursued as heretofore, then from this different definition his aim can only be by it to reject the demand for harmonious training in the school, and with it the demand for industrial instruction. Indeed, it is so; both demands are opposed by this argument. Let us see with what right.

First of all, we very gladly notice that industrial instruction is indirectly acknowledged to be a means for harmonious development. We must, however, point to the fact that hitherto no one has ever assigned to the school merely the aim of idea training, but has always stipulated that it shall develop physical skill, together with moral capabilities and qualities. Let us admit that idea training is included with mental activity, although this is not right, since it is only a part of it, and does not include judgment and argument. For our present school, therefore, the definition is much too narrow, and hence cannot be used as a reason for refusing the demand for harmonious development, inclusive of the demand for industrial instruction.

But even admitting that this is correct, that the aim of the public school be merely to form ideas, then, indeed, industrial instruction cannot be excluded, but must so much the more be demanded, as it is the most important means for idea building. As such, it sur-

passes object instruction, for it presupposes the most exact observation of things, and adds to it new forms, together with new concepts. Hence, the ideas must necessarily become clearer and more definite than by mere object instruction.

Further, the suggestion that it is only a factor in the development of mankind cannot free the school from the claim for harmonious development. Certainly, it is only a factor in human development, but it is the representative, *par excellence*, of pedagogy, and as such must within its sphere fulfil the demands of pedagogy. It must educate harmoniously, as also the other factors of education, home and society, on their part must do. As we know, these latter train one-sidedly and inharmoniously enough.

In Heaven's name, who should satisfy the demand for harmonious education, if not the school? The home is still less capable of giving a harmonious training than it is of giving education in labor and mental activity. Society has created the school, through which the educational duties of the family are to be fulfilled. Consequently, the task will remain to the school, and only to it can the task of harmonious training be assigned. Certainly, previous to the fourteenth or fifteenth year, the public school cannot be required to train ready men, for it has only children under its control, but it can be required to train harmoniously. Harmonious training must not be confused with complete training. In all stages and conditions of life,

education can be harmonious, but in its compass not complete and finished. Harmonious training does not mean finished training, but it means such training that all human powers and talents shall be symmetrically developed. Harmonious training means to bring the moral, mental, and physico-practical side of man to a symmetrical development. Harmonious training denotes, not the quantity, but the quality of the training. Harmonious training cannot be determined by square, still less by long, but only by cubic measure.

The majority of the opponents of industrial instruction assert that the school already fulfils the demand for harmonious training. In any case, the crown belongs to the German educator, who has the boldness to declare that *every single subject in the school should educate symmetrically; since industrial instruction does not do this, then it does not belong to the school.* Then reading, writing, arithmetic, grammar, geometry, geography, history, nature knowledge (*i. e.*, natural history), singing, drawing, gymnastics, not all together, each applied in its right proportion trains symmetrically, but each alone trains symmetrically, so it stands written in black and white. Accordingly, each trains the moral, mental, and physico-practical side of our nature. It is a marvel, not only that the children, and indeed, that we teachers ourselves, through the enjoyment of such training, have not already become half-gods, but that many among us have remained very one-sided indeed. Just think of it! every subject trains

symmetrically ; there are a dozen subjects, then there is a twelvefold symmetry.

But how? If each subject trained symmetrically, morality would receive about one per cent, the physico-practical capabilities one per cent, and the mind about ninety-eight per cent. Then could we speak of the symmetrical training power of each of these subjects? Certainly, but only with the aid of very flat pettifoggery. Sound common-sense would not speak of the symmetry, but of the one-sidedness of such training.

If in an excited discussion upon the power of training symmetrically which belongs to each of the ordinary school subjects, one should so exaggerate, we could understand it; if, however, it is to be found printed in a pamphlet by a man crowned with a recognized diploma of popular science enterprise, then it is presuming a great deal upon our three dimensional power of comprehension.<sup>1</sup>

It is self-evident that the bold opponent makes no attempt to show that industrial instruction does not train as symmetrically as at least any one of the school subjects, *e. g.*, writing or singing. And "if reasons were as plenty as blackberries," says Falstaff, we should still give you none. So also the opponent; he

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<sup>1</sup> Meyer's Instruction in Handicraft appeared in the German *Zeit-und Streit-Fragen*. Certainly, our remarks are not opposed to this meritorious enterprise.

asserts quite simply that industrial instruction, apart from the resulting exercise of the eye, strives to secure the greatest one-sided development of one member.

What industrial instruction, *i. e.*, what certain people at certain places seek to accomplish by industrial instruction, has nothing to do with an earnest investigation as to the training and educative value of the same, for it can only treat of what educational results industrial instruction has, according to its nature. What should we say of a teacher, who, wishing to inquire into the pedagogic value of a school subject, would draw his conclusions from the unpedagogic aims and the unpedagogic pursuit of this subject on the part of Henry or John? As we have already shown, the whole argument that industrial instruction seeks to accomplish a most one-sided development of the hand, is superfluous and a gross error. (See Chapter II.)

Every subject, if it would find acceptance in the public school, must prepare for the common vocations of the common people. All subjects of instruction in the public school fulfil this demand, except industrial instruction. It prepares one only for the position of the mechanic, hence it must not be received with the public school. So argues the opponent further.<sup>1</sup> What the common vocations of the whole people are, has,

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<sup>1</sup> Meyer, Handicraft Instruction.



however, not been stated; neither has a definition of any such avocation been given. Only one characteristic of the idea of a common avocation of the whole people do we learn indirectly, viz., this, that industrial labor does not belong to it. Then industry itself is not a common avocation of the whole people; also agriculture can be no such avocation, for without industrial labor, it is inconceivable. For the same reason, trade and commerce can not belong to the common avocations of the whole people, for they presuppose and require industrial labor. Finally, the two educational arts, architecture and modelling, do not belong to these common avocations, for they are but a higher spiritualized form of industrial instruction. Hence only painting, the arts of phonics and expression, and the sciences remain. But these also presuppose industrial labor. The painter needs linen, paper, or a wall to paint. The musician needs instruments upon which to play, and he, as well as the poet, in order to fix his thoughts, must have paper, pen, and ink. Finally, the scholar, in addition to the last-mentioned things, needs books and apparatus. All these indispensable aids to art and science can only be secured by industrial labor. But, above all, industrial labor is necessary for support, shelter, clothing, convenience, travelling; in short, for the gratification of the many inevitable and social necessities of artists and scholars. Accordingly, without industrial labor there would be not only no arts and sciences, but also

no agriculture, no trade and commerce. However, as industrial labor is excluded from the common avocations of the whole people, then, according to Herr Meyer, all these things are not common avocations of the people.

But where are the common avocations of the people, if industrial labor does not belong to them, — industrial labor which unites all the important avocations enumerated? *If there be one single avocation common to the whole people, it is surely industrial labor.*

Naturally, it does not occur to the opponent to show how *the usual school subjects prepare for the common avocations of the whole people; he only declares it specially in regard to gymnastics.* Now, if we enumerate the avocations common to the whole people, manual labor, agriculture, trade, and commerce, it is not easy to perceive in what way gymnastics will prepare for them; if we enumerate the public offices as avocations common to the whole people, again we can hardly understand how gymnastics can prepare for the administration of justice and public affairs. Does bending of the knees and stretching of the arms instil into the mind a comprehension of a citizen's rights and duties? Gymnastics can certainly make a man more skilful in the fulfilment of one political duty, that of protecting the country, and it can strengthen the body for the practice of labor; but it certainly cannot prepare for civil employments so well as perhaps writing, reading, and arithmetic for trade and commerce. If

the opponent has in any way united an idea underlying his words at all, then there is about it a scholarly conceit, and an undervaluing of labor in general which we no longer expected to encounter. But we have reason to suppose that he has worked according to the Mephistophelian advice:—

“But o’er-anxious thought you ’ll find of no avail;  
For there precisely where ideas fail,  
A word comes opportunely into play.  
Most admirable weapons words are found;  
On words a system we securely ground;  
In words we can conveniently believe,  
Nor of a single jot can we a word bereave.”

*From Anna Southwick’s translation of Faust.*

Now, from our investigations, it follows that in view of the aims for the people’s school established by the opponents, industrial instruction cannot be excluded, but for the securing of these aims it is more than ever to be desired. As we shall further show in the coming pages, it is necessary for idea building [theoretical training], and necessary for preparation for the most important avocations of human life.

## II. CAN GYMNASTICS SECURE HARMONIOUS DEVELOPMENT?

The opponents of industrial instruction say that gymnastics will secure harmonious development, only they must be given in their full extent. They demand,

therefore, daily instruction and exercise. Hereby, they start upon the false presumption that industrial instruction deals only with general physical development. If this were the case, then gymnastics could certainly in great part, though not entirely, replace labor. Indeed, we can hardly understand how gymnastics will or can exactly exercise and strengthen all the motor nerves which are required for the performance of definite labor. If industrial instruction had merely the education of the hand for its aim, then instruction in gymnastics could not replace it. Gymnastics can only increase capability for labor, but can directly create neither capability nor skill in labor. If we compare the human body and its organs with a manufactory and the machinery which it contains, then we can say gymnastic instruction is necessary in order to strengthen the motor; but industrial instruction is necessary in order to erect and to make capable of action the machine which must be moved by this motor. Of what use is a strong motor without a competent machine, capable of action? At best, it only causes destruction and ruin to itself. Gymnastic instruction trains the organs of the body in general, essentially for the sake of the organs themselves; industrial instruction trains for the aims of life. Gymnastic instruction receives its highest significance only as a suggestion towards the aims of life, and as means for their fulfilment. It is not pursued in the school for the purpose of training contortionists

and athletes, but men with sound bodies, who are capable of fulfilling their duties towards society. For the aims of life, gymnastic instruction is dispensable; industrial instruction, on the contrary, is for this purpose indispensable; it must be given by whom it may. Gymnastic instruction, including gymnastics and not merely school exercises, serves for harmonious development; industrial instruction serves for this also, but in a broader sense, in that it also promotes the aims of life. Gymnastics train no organ for the purposes of life, but industrial instruction trains the organs therefor, and besides, strengthens them as well as gymnastics. *Hence, gymnastics can never replace industrial instruction, but a well-arranged course of industrial instruction might rather make gymnastic instruction superfluous.*

Industrial instruction, the same as any harmonious development, is not intended to give to the present one-sided mental development a counterbalance in bodily exertion. Oh, no! In the first place, that would not give harmonious development; and in the second, it would be a very narrow comprehension of industrial instruction and of harmonious development. Industrial instruction *has much more to do with creating an interest, aim, and foundation for theoretical, abstract instruction, and with securing knowledge and understanding, which no other instruction, which, indeed, no instruction but labor, can secure; just as harmonious education deals not only with the establishment of equi-*

*librium between bodily and mental training, but quite as much with the establishment of equilibrium within the sphere of mental training, and above all, for the establishment of equilibrium between moral and mental training.*

In conclusion, we may remark that no opponent of industrial instruction attempts to show that gymnastic instruction can supply the demand for harmonious development. Some merely assert that it does, and others demand that increased instruction in gymnastics shall secure harmonious development.

### III. THE SCHOOL ALREADY PURSUES HAND LABOR.

It has already a number of subjects, which "from their mechanical side, may be regarded as hand labor, *i. e.*, writing, drawing, arithmetic, and geometry."

These subjects, together with gymnastics, make industrial instruction in particular dispensable, say the opponents. Oh! oh! Why, then, do they assert that the school already pursues hand labor, if, as a subject of instruction, it is of no worth? And if it is already there, why should they resist the introduction of hand labor into instruction? In this case, the question should only be for more or less. Yet, no; the opponent is pleased to jest; or is he in earnest when he asserts that a number of school subjects, among them arithmetic and geometry, from their mechanical side are hand labor? Certainly he is in earnest, and

is, indeed, entirely right. All sciences, as philology, history, geography, botany, zoölogy, mineralogy, and chemistry, moreover law, medicine, astronomy, theology, and philosophy, are, from their mechanical sides, hand labor. This doctrine from its sublimity is worthy to stand beside that of the English professor, Henry Steffens, who says, in effect, "For the laboring man, hand labor is enjoyment; but for the gentleman, enjoyment is labor." For the completion of this system of doctrine, it only remains to be shown that the treadmill punishment in the English prisons, from its anti-mechanical side, is mental activity. This last assertion would prove as much against the mental activity of criminals as the foregoing objection proves against industrial instruction.

Writing, drawing, arithmetic, geometry, and gymnastics, says one, make special industrial instruction superfluous. Why do these subjects make hand labor superfluous? Because, from their mechanical side, they are hand labor. In the future, the tilling of the field, the construction of railroads and buildings, the making of clothes, dyes, soaps, in short, every kind of hand labor will be unnecessary, because all the sciences, from their mechanical side, are hand labor. Happy future!

The friends of industrial instruction have quite as much authority for stating that hand labor makes all theoretical instruction unnecessary, because every kind of labor, from its anti-mechanical side, is mental

activity. But what would be gained by such a hair-splitting controversy?

This play of words by the opponents proves nothing against, but something for, the cause of industrial instruction, as it shows how the opponents catch at reasons and cling to every trifle. It is a declaration of bankruptcy.

#### IV. DISCIPLINARY AND EDUCATIONAL VALUE OF DRAWING, INDUSTRIAL, AND SCIENCE INSTRUCTION.

Starting from the false assumption that industrial instruction aims merely at the development of the hand, we meet the assertion that the hand is better exercised by instruction in drawing; that drawing is quite as educative and attractive an object for employment. It extends to professional labor, and trains the taste and the eye.

For the moment, let us admit that industrial instruction merely aims at the development of the hand; then drawing can replace it as little as gymnastics. The opponents will not and can not prove that instruction in drawing can strengthen all the motor nerves and muscles which are necessary for different kinds of active labor. In working, we must make movements according to all three dimensions; in drawing, only according to two: in working, we must apply muscular strength to a greater or less degree; in drawing, but very little: in working, we must lift, press, draw, push, strike, turn, wind, bend, stretch, give resistance



to pressure, to pushing, striking, drawing; in drawing, the greater number of these active movements can not be at all applied, the rest only in a one-sided fashion. Now, since the most important organ for the performance of all these elementary activities is the hand, we can readily perceive that in working, the hand can be much more generally exercised than in drawing. The activity employed in drawing is not in any way equal to that employed in working; otherwise, every good designer must be also a good sculptor and workman, which is not by any means the case. One may be able to delineate all objects of nature and art without being able to construct a single object; while, on the other hand, construction may be carried far without ability to draw. But while a man who is skilful in imitating and creating can with very little instruction draw the things he has made, the person who is skilful only in drawing must learn a great deal before he can give his drawings material form. *From construction to drawing is a short step; from drawing to construction is a long way. Very few great painters were also skilful sculptors, but the larger number of great sculptors were also skilful designers.*

At present, much is being said about the improvement and protection of artistic hand labor; but while the learned advocates of this improvement look to instruction in drawing as a rational means of protection, they pass by the industrial instruction as of very limited value, or oppose it entirely. From what has

already been said, we can see how arbitrary such a course is. In the first place, for the exercise and prosperity of artistic hand labor, a high grade of hand skill is necessary, which, as we have already shown, can be better developed by industrial instruction than by drawing. By the following considerations, the mistake which lies in the encouragement of artistic hand labor and the discouragement of industrial instruction can be placed in a still clearer light.

One can draw everything, so to speak, even the most impossible pictures of the fancy; but one cannot construct everything that is drawn, and many objects that are drawn can only be constructed in definite sizes and from particular material. Every material has its technique and laws of art, which can only be learned by working with the material itself. The knowledge of the material, of its technique and æsthetic laws, is more important for the artificer than the possession of skill in drawing. Of what benefit is it that one can devise the most tasteful drawing, if one lacks the practical skill to put it into material form; or from ignorance of the material in the drawing, one goes beyond the limits of the technique of this material, and hence is totally unable to work out the drawing? Sometimes it even happens that the design cannot be executed in any material. Finally, it is possible that the design may be executed, but the object constructed in the chosen material makes no impression, or is distinctly ugly. Here the errors in taste do not arise

from ignorance of beautiful forms so much as from ignorance of the technique and artistic laws of the material in which it is embodied. Lack of taste has less foundation in the inability of the sculptor and workman to draw, than in the inability of the designer to construct and in his ignorance of the technique and æsthetics of the material. It is much more necessary that the designer learn to construct than that the constructor learn to draw. This last is, of course, useful and advantageous.

Certainly, drawing may be extended to professional work, but it is not itself professional work; and that drawing which extends to professional labor, and yet does not admit of transposition into professional labor, is half complete. Would not drawing extend to professional labor, that is, drawing from ground elevation and profile, because more attractive, if it could be worked out? And what pedagogic reason forbids the working out of what is drawn? That drawing is an educative and attractive kind of employment, no one doubts; but the execution, the work, is still more educative and attractive. The execution corrects the drawing, and makes one rightly conscious of the object delineated. The making, the construction of an object, stands in its educative, attractive, and satisfying value much higher than the imitating, or previous delineation of the same on paper. Whoever has pursued hand labor, knows very well what pleasure and satisfaction a successful piece of work furnishes;

he knows how, at the sight of it, the sense of his own value and capacity is elevated. The pleasure in a piece of work is much greater, deeper, and more lasting than in a drawing. Any one who has had the two experiences will confirm this. Then, not a single course of industrial instruction has been held for the teachers, in which this pleasure and satisfaction in the products were not conspicuously apparent. This previously unknown satisfaction has already transformed many an indifferent man into a warm friend of industrial instruction. But not only experience proves that the construction of things produces greater satisfaction than drawing, psychology also proves it. According to the law of the effects of contrast this must be so, for the construction of an object costs more effort than the drawing of it; the construction is more difficult than the drawing. The pleasure is in proportion to the effort expended in reaching an aim.<sup>1</sup>

In an educational journal<sup>2</sup> it was recently very beautifully shown that science cannot be satisfactory, because it is continually incomplete, but that art can satisfy, because its creations are always complete, distinct, whole. This assertion was made for the use and advantage of drawing in the public school, but it is much more applicable to industrial instruction, because each piece of work is something complete, and in the

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<sup>1</sup> Dr. Piderit, *Theory of Fortune*. Leipzig and Heidelberg, 1867.

<sup>2</sup> *Teachers' Journal*, Switzerland.

highest degree satisfies its creator. But while a school drawing can seldom find a practical application, the labor product of the pupil can always do so; it can satisfy a practical need, and hence the satisfaction of the producer is greater. He knows and can prove that he has created something useful.

In the suggestion that science cannot satisfy, lies the strongest condemnation of our present system of study and science schools. If science itself, in its highest perfection, can not satisfy a man who sees the connection between science and life, and understands the signification of the same for material culture, how can the beginnings of science satisfy the child whose limited powers can grasp very little of this connection and significance?

The self-activity of the child is rightly represented as the most important educative momentum of instruction in drawing. Instruction in drawing which does not rise above spiritless copying is of no worth; that instruction by which the self-activity of the child is exercised is the best. Well, as little as any one has presumed to doubt the value of the self-activity of the pupil in drawing, just as little can one question the eminent importance of production in industrial instruction. If producing in drawing is educative, it must be as much so in hand labor. Indeed, hand labor must be more educative than drawing, because in it the self-activity is greater. In drawing, one must constantly deal with the mere form; in labor, one has

to do with the form together with the material. In drawing, only two dimensions are considered; in labor, the three dimensions must be equally observed. Hence, the man who constructs an object receives indisputably livelier, clearer concepts of it than the one who merely draws, for he must much more accurately comprehend the form as well as the nature of the material. Apart from works of art, however, the material of every object is quite as important as the form, and often much more so.

Through the following considerations, the great educative power of hand labor as contrasted with drawing may be much more clearly perceived. In working, I must touch the material, analyze it, perhaps smell and taste it; in drawing, not: in working, I must learn the properties of the material; in drawing, not: in working, I must choose the tools, and also the manner of work, according to the material; in drawing, not: in working, I must, as a rule, exert myself physically; in drawing, not: in working, I must give great attention to the material; in drawing, very little: in short, in working, I must set many more senses and powers in activity than in drawing. Hence, the construction of objects implies much more knowledge and understanding, enriches the concepts in a much higher degree, and awakens and exercises many more powers and talents, than drawing.

Instruction in drawing trains the taste and the eye, says one. We admit that instruction in drawing, peda-

gogically pursued, secures the training of the taste and of the eye ; but industrial instruction, pursued according to pedagogical principles, must secure this training in a much higher degree. In regard to the training of the eye, there is no doubt that by the construction of objects the eye must in every way be much more exercised than by drawing. The proofs of this lie in what has already been said. That industrial instruction must be calculated to train the eye and taste better than drawing can furthermore be shown in the fact that the objects, according to the material used, show different natural colors and lustre, while drawing is silent upon these important qualities of objects. Drawing trains really only the taste for form. The construction of objects trains also the taste for color, and for the combination of color, form, and material. For artistic hand work, and for the artistic forms of life, taste in combination is most important. Taste can at all events be very much better trained with objects themselves than with drawings of objects. For this reason, we visit places of art and beauty, and shall visit them even when graphic art shall be much more highly developed than at present.

Finally, and from an educational point this is most important, it cannot be denied that constructive embodiment of form in some material appeals to the nature of man, and especially of the child, much more than constructions on paper. Before men could sketch they could construct, *and before children touch the drawing-*

*pencil they build and construct objects according to reality.*

*If we proceed according to nature, hand labor and modelling must be introduced into the school, and both should precede drawing. If one really intends to train the taste, eye, and hand, in the school, then hand labor is needed; if one wishes to bring the principle of self-activity in a most comprehensive manner into the school, so that it may be of worth, it can only be done by hand labor. If professional drawing in the school is to be attractive, then it must be followed by execution; if the child is to be satisfied by instruction, the most effective means for this purpose, hand labor, must not be excluded.*

Far be it from us to underrate the educative value of drawing; but this educative value, and much more, its economic value, has been of late considerably over-estimated.

It is believed that if not the whole, at least one half the social problem may be solved by drawing. With childlike thoughtlessness the fact is entirely overlooked that the social problem is not educational, but a question of economic transformation. What will it profit the laborer, who, by an improved machine, or because of a business crisis, is thrown on the sidewalk, that he can draw? Or, how is drawing to help the mechanic who is oppressed by the competition of large business industries? We hear it cried out, that, by devoting himself to an artistic trade, he will obtain a



footing! But have the defenders not learned that artistic handicraft is also carried on with all the powerful advantages of a large industry? Or have they never considered the question of who is to buy all the products of artistic educated mechanics? At present we have a sufficiency of artificers, but not enough purchasers of their products. There is as great a lack of employment among artificers as among the workmen in other branches of industry. What we need is people able to buy, and only by a deep-reaching social reform will they become able. Only when the mass of the people can take part in the social enjoyment of life, may we expect the art trade to extend and flourish; till then, not.

#### V. OBJECTIVE METHODS OF INSTRUCTION IN FOREST AND FIELD.

While one set of opponents attach great value to the claims and support of observation, others cast it aside, and demand that objective instruction shall be pursued in forest and field, but not in the workshop.<sup>1</sup> Doubtless, objective instruction shall and must be pursued in forest and field, but it is quite impossible that all objective instruction should be carried on there. Thousands of things connected with life cannot be learned in forest and field, since not even a national industrial

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<sup>1</sup> Meyer, *Instruction in Handicraft*; and *Report of the Transactions of the Zurich School Synod*, 1882.

exhibition furnishes them. Also, what is still more important, we cannot see there how these thousands of things can be produced by labor. Why do the advanced and elementary schools make pilgrimages to such exhibitions? Entirely on the ground of objective instruction. And why are machines in action, and work-people at such exhibitions of labor products, constantly beset with spectators? Because an infinitely greater interest and much more information are secured by being present at the construction of a thing, than by merely looking at the thing completed. But in forest and field we can not see grinding, kneading, baking; can not see carding, spinning, winding, twisting, spooling, and weaving; can not see coloring, spooling, dressing, pasting, stitching, binding, and ruling; can not see printing, perforating, embroidering, sewing, knitting; can not see filing, welding, forging; can not see sawing, planing, gluing, joining, turning. In forest and field we can not see the creating of material things, we can only see what has been created. The creating, however, is more interesting than the *being*. What a one-sided comprehension of objective instruction do we meet here! In the face of the fact that all the prominent educators recommended objective instruction in the workshop, such a comprehension on the part of educators is hardly conceivable. Comenius and Locke recommended it at a time when the colossal industries of our day were not yet even born.

## VI. OBJECTIVE AND HAND-LABOR INSTRUCTION.

In the contest over industrial instruction, it has been asserted by one of the opponents that the foundation of all educational work depends upon observation.<sup>1</sup> We can not here enter into a psychological discussion, and show that this is wrong; we must be satisfied with saying that education rests upon entirely different foundations, while we suppose that the opponent intended to say that the foundation of all means of education and understanding rests upon observation. Since the time of Pestalozzi, who first formulated it, this statement has been generally received as true. It is, indeed, true, though it does not contain the whole, but only a part of the truth. We do not learn to know an object merely by looking at it; not even when we feel, smell, taste, and hear it, do we learn to know it rightly. If we wish to learn it thoroughly, we must break, bruise, cut it; we must press on it, press it together, stretch it, heat it, cool it; we must expose it to the cold, the heat, the sun, the water, the air; in short, we must form it, or deform it, or try both; we must *work* with it. The most important qualities of objects become known to us, not by observation, but by actual work with them. If our ancestors had been satisfied with mere observation, we should still be in the dark about the qualities

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<sup>1</sup> Report of the Transactions of the Zurich School Synod, 1882.

and nature of woods, minerals, soils, and metals, as well as the nature of plants, animals, and even ourselves. Without working with woods, minerals, soils, and metals, what should we know of these things? Nothing that would in any way be important for our lives. We could not say whether or not they are hard or soft, cleavable, fusible, ductile, elastic, brittle, soluble, plastic, etc. And if we had not investigated them, how would our knowledge of animals and plants stand? So long as people shrunk from the dissection of bodies, did the knowledge of medicine rest upon anything more than implicit faith? Whatever may be thought of vivisection, we must acknowledge that we owe to it much of our important knowledge concerning the processes of life and disease.

The results of observation are misleading. Satisfaction with these results gave rise to peculiar systems of opinions and beliefs, but when we began to construct, to act, the sciences were developed.

Our modern exact sciences do not rest alone upon observation, but chiefly upon experiment, upon working with objects and living things. Hence, that observation which implies not only the use of sight, but of all the sense perceptions, is by no means the only source of knowledge. It is only one among others; quite as important a one is labor, and a third is the sensation of movement.

It is indisputable that if we did not possess the power of voluntary movement and change of place,

with the accompanying sensations of movement, we should never attain the most important concept of space. He who has measured the distances of the earth only in the steam-cars, has a much vaguer impression of them than he who has measured them on foot. *Concepts of toil, fatigue, effort, can never be acquired without labor and sensations of movement.* Hence, a man who has never done any kind of agricultural or industrial labor cannot acquire these concepts, because the fundamental concepts are lacking. The fundamental concepts of the activities of arithmetic, writing, and drawing, which one has perhaps acquired, can serve as little for the formation of the concept of industrial and agricultural hand labor, as the concepts of all the birds can help us to construct the concept of a fish or quadruped, if we neither in nature nor in art had seen one. The concepts of the mental activities have little more in common with those of the bodily activities, than the concepts of birds with those of fishes or quadrupeds.

But the man who has no conception of hand labor can have no self-acquired and correct concepts of the hand-laboring class of people [industrial population], and of the objects constructed by them. In consequence of these incomplete concepts, he despises labor and laboring people, and becomes prodigal and wasteful of labor products, just as all the ruling classes of ancient states, in consequence of the disuse of hand labor, notwithstanding moral precepts and philosophy,

have, and according to psychological laws *must* have, become. The final result of this disuse of hand labor, with its consequences of prodigality, gluttony, and drunkenness, was the complete bankruptcy of society. In proportion as the disuse of hand labor increased, contempt of labor and laborers, prodigality, and drunkenness increased. It could not be otherwise. Men who are strangers in the whole world of concepts growing out of hand labor, and who are incapable of thinking, judging, arguing, and feeling, are dangerous to the well-being of a state, especially of one founded upon the labor and equal rights of all citizens.

Now, if the common school does not make them acquainted with it, a number of citizens are at present growing up ignorant of hand labor. Generally, these are the citizens who will be educated and chosen for the guidance of the state. In view of this fact, can we wonder that labor is so little esteemed? Certainly not.

*According to what has been said, industrial instruction, from an educational as well as from a social, political stand-point, is a necessity. From an educational stand-point it is necessary, because hand labor secures knowledge and understanding, which cannot be secured by mere observation, but which for mental training and for life is, however, of the highest importance. From a social, political, and pedagogic stand-point, it is indispensable, because hand labor*

*serves in the forming of concepts which, for the peaceable intercourse of humanity, for moral conduct, and for the existence of the state, are of the greatest significance.*

#### VII. INDUSTRIAL INSTRUCTION CAN NOT REMEDY THE DISADVANTAGES OF THE PRESENT SCHOOL SYSTEM.

So the opponents declare, but they argue concerning the physical injuries resulting from some kinds of hand work, and shoot very wide of the mark. Industrial instruction is not in any way intended to be instruction in handicraft, as it is very unfitly called, for it does not educate finished mechanics; that is done in institutions for special instruction for which the opponents of industrial instruction also speak. Industrial instruction, pursued according to pedagogic principles, which is not a mere transplanting of a branch of industry into the school, will decidedly neutralize the disadvantages of long sitting and other physical injuries of school life: first, because labor demands the greatest variety of employment for the senses and muscles, and secondly, because by labor, partly quite other senses and muscles, partly the same senses and muscles although in other directions, are brought into practice. However, recreation, except by sleep, does not consist in idleness, but in change of employment and in change of movement of the bodily and mental forces. Locke has already pointed out this important truth, and Rousseau, speaking in

behalf of hand labor, says, "The great secret of education is to manage so that bodily exercises shall refresh the mind, and *vice versa*." Refreshment, however, does not consist alone in the change from bodily to mental employments, but also in the change within the sphere of bodily and mental activities. Any person accustomed to self-observation must certainly have experienced this. One is weary of historical study, but still quite fresh for natural science. One is worn out with thinking and incapable of producing thought, yet quite equal to the reception of new thoughts. One is satiated with poetry, yet grasps after prose reading.

So it is with bodily activity. During the day we have become fatigued with one-sided, heavy bodily labor; in the evening, however, we have forced ourselves to go to the gymnastic society, and after an hour's exercise returned fresh and newly strengthened; provided neither the one nor the other be carried to excess, the change from bodily to mental activity naturally affords the greatest recreation. This explains the fact that children whose activity is divided between study and labor learn much quicker and easier than those who only study, and that they never become weary of school. On account of this school weariness, an interruption of from one to more years has been proposed, but why rack the brains for the cure of an evil whose cause can be so easily remedied? Let industrial instruction be introduced, and the children will learn more rapidly and easily, and will not become



weary. An interruption in the attendance at school is disadvantageous to the children, and must cause great difficulties for the parents. It will not and can not be denied that the physical injuries of our present school of theoretical study, viz., mental over-exertion and weariness, precocity and satiety, may be avoided by industrial instruction. This indisputable advantage alone should be sufficient to make the introduction of this instruction desirable, for mental over-exertion, precocity, and satiety render the formation of character quite impossible. Industrial instruction, extended through all grades of the school, even to professional and scientific subjects, would be the best means of avoiding overburdening. Overburdening consists partly in too much abstract, theoretical instruction in general, but also partly in one-sided, disconnected, uninteresting excess of this instruction. By the introduction and union of industrial with theoretical instruction, a central point and interest for many otherwise separate subjects might be created, and the one-sidedness of all the instruction prevented. *In consequence of the change between bodily and mental activity, and the resulting mental freshness, and because of the concentration of instruction with the increased interest, the children and youth would more readily master the matter of theoretical instruction; the hours for study could be shortened, and still the aim of mental study attained.*

## VIII. INCREASE OF HOURS FOR INSTRUCTION.

We know very well that the opponents of industrial instruction assert the very opposite of what we have just proved, and say that without additional time, this new subject can not be introduced. We dispute this, and beg leave to present some reasons for our opinion that industrial instruction, which is quite as much a new method of teaching as a new subject of instruction, secures to the children a much quicker, easier, and more thorough knowledge than theoretical instruction, and, what is more important, it teaches the pupils to seek and find the truth.

The principal point in all instruction is that the pupil shall have an interest in it. The Herbartian pedagogy seeks to awaken this interest by the establishment of an aim in teaching, and at the same time to create thereby an interest, a will, in the pupil. The pupil must know why he is active; he must have the benefit of his activity before his eyes. The demand of Comenius, that "nothing of which the use is not perceptible shall be taught," is hereby to an extent met. In itself, the whole argument is quite correct. In the abstract instruction of the school for study, however, the aim of teaching is almost entirely theoretical, the practical benefit of which the pupil does not perceive, because it lies too far off in the outside life of which the child as yet understands nothing. If the use of an aim can not be comprehended, of what benefit is its establish-

ment? Practical benefit is that which moves the child, and is that after which it inquires. For the training of unselfish men, to ignore the child's stand-point of utility indicates a misconception of child nature. An unselfish man can not be trained by ignoring or attacking the natural, positively authorized egotism of children; but only by turning this selfishness into the right channel, and bringing it up to that humanity which desires no more for itself than it grants to others, and asks for others what it wishes for itself. Like the will, egotism must not be broken, but guided. Moreover, the question of children, "Of what use is that?" arises just as much from an innate desire for knowledge as from egotism. It is the question regarding purpose. To put them off, or not to answer them, is to deaden the instinctive desire for knowledge, and to make inactive dreamers of children. The theoretical aims of teaching in the school are not generally final aims. Final aims can often be only practical activities and their products. If we establish labor and its products as aims for teaching, we have, for many cases, marked a purpose which the pupil recognizes, and by which indirect theoretical aims receive a support. In this way, the greatest possible interest and desire on the part of the pupil will be created. The benefit is plain to be seen, and if it is united with theoretical information, the pupil knows why and to what purpose he must learn these things. No artificial exterior motive is necessary, it lies in the thing itself.

"True education of mankind, education by development, must begin with the fact; the act, with the doing, must germinate in it, must grow thence and be founded upon it," says Froebel.

Because, by industrial instruction, clear and recognizable aims of teaching and learning, with manifest advantages, are established, and the interest of the student greatly aroused thereby, and a strong desire is aroused and guided to definite ends; because, furthermore, industrial instruction, as we have already shown, brings into play a greater number of mental and bodily powers; therefore, it must secure a quicker, easier, and more thorough knowledge. Furthermore, since by no other instruction the self-activity of the pupil can be greater than by this, then in the highest degree and in the very best manner it must be calculated to promote self-reflection, invention, combination, inference, and judgment.

"The mind, which by the otherwise evil kind of teaching is constantly trained to act according to foreign precepts, revives by industrial instruction, catches ideas, and invents means to perfect them," says Salzmann; and Rousseau was right when he said, "An hour's work will teach your pupil more things than he can remember from a whole day's explanation."

In order to secure time for industrial instruction, it is not necessary to increase the hours of instruction, as the time devoted to this subject may be gained by the shortening of the time for theoretical instruction.

Should this be impossible, a supposition which is very contradictory, then it would not be necessary to increase the time, but to exclude from the school such subjects as have the least educational worth. We may mention as such doctrinal teaching and history. In a state which does not wish to violate the palladium of freedom of belief and conscience, systems of belief do not belong in the schools, and, in the grades of the public school, history can be nothing but political or social dogma.

Of history, understood as the inner foundation of social events, the child can grasp almost nothing, because self-acquired concepts necessary to the comprehension of the subject are lacking. Instruction in history must be transferred to higher grades, where the mind is more mature. Only in this way can the problem of method of instruction in history be satisfactorily solved.

Of the educational value of instruction in doctrine and dogma, it is unnecessary to give any information. On every page of history the answer is written in letters of blood, for him who understands to read.

If school subjects are chosen according to the order of their value in social life and in human culture, no question as to whether industrial instruction shall find a place will be raised; the question will rather be whether other subjects can find a place on the school programme.

After what has been said, we can confidently leave the reader to judge of the value of the assertion, that

by the introduction of industrial instruction the aim of the school for study will not be reached. If this assertion were well grounded, it would prove nothing against industrial instruction; as it would not by any means be proved that the aims of the present school for study are the only right and infallible ones.

By industrial instruction, says one, the number of subjects will be increased, but the thoroughness and educative influence upon the pupil will be diminished. The inference from this is, that the less instruction is extended to different subjects, the more effectively it works. According to this, a school with *one* subject must secure to the pupil the greatest thoroughness and the greatest educative influence. From many subjects, then, must this one be chosen. By what standard shall this choice be determined? By the educational and social value of the subject. Agreed! Now, according to our *expose*, what must this subject be? Industrial instruction will certainly increase the number of subjects, but only outwardly; in reality, it will not increase the variety, it will create living relations with this variety, while the thoroughness and educative influence upon the pupil will not be diminished, but must be increased.

IX. HAND LABOR SHOULD BE VACATION EMPLOYMENT,  
AND IN CHILDHOOD MERELY PLAY.

This objection is brought against industrial instruction. Remarkable, indeed! very remarkable! Hand

labor, which, as a subject of instruction, is utterly worthless, and also as such affects the health injuriously, is good enough for play and vacation employment. A glance into the peculiarities of child nature has provided the opponents with this knowledge. They have doubtless remarked that in vacation and during their playtime, children gladly work at something, and that they are happy in building and constructing. Hence, they shall do so in vacation and in play, but not in school. What a conclusion! *We* do not make it, but it must be made by the opponents, who recommend hand labor as vacation employment and play.

Why hand labor shall be only vacation employment and play, we do not learn. Indeed, it would be very hard to say. Has perhaps hand labor more remote reference to the life of the child, than arithmetic and writing, geography and history? Or are the relations of hand labor to life less intelligible to the child than those between theoretical knowledge and life?

Indeed, in order to hear the answer from every mouth, it is only necessary to put the question. The relations of hand labor to life are much nearer than those of theoretical instruction, and are incomparably easier to comprehend. Daily food and drink, shelter and clothing, are necessary; and in order to procure them, labor is necessary, for all school knowledge cannot conjure them.

That for hand labor children have a very great, and for theoretical instruction a very limited interest is

taught by all psycho-physiological laws, and confirmed by experience. Therefore, must hand labor be play, and mental labor bloody earnest, as it is made by the school, and as teachers specially wish it to be made?

Our conviction is, that the future will reverse the present relation between practical and theoretical instruction for childhood. Then the principal thing will be *labor* [*construction*]; and in proportion as labor awakens in the child an interest and a sense of need, will theoretical instruction be added to it.

We cannot deny that at present children have to learn much for which they have neither a sense of need nor interest. By a suggestion regarding social necessity, this compulsion may be justified, but it can never be supported by pedagogic reasons. It is a violation of the course of development of child nature, and stands in contradiction to a developing education. Hence, in order to create a sense of need and an interest in the child, the task of pedagogy must be to do away with this compulsion. For many subjects, this can be done by labor; and nearly all subjects, at least in reference to labor, can be made voluntary. If any subject is fitted to become the central point of instruction, surely it is labor and its products.

We know well that not all theoretical instruction can be united to hand labor, but much can be connected with it, and nearly all branches can find in it a natural focal point. All the theoretical instruction which can be, ought to be united to labor; that which is not con-



nected, should either be placed in relation to it, or should lead up to it. For the lower school grades, it is essential that the theory grow out of the practice; for the higher grades, theory may precede practice, but must pass over into it. Neither in life nor in instruction should practice and theory be separated.

By observing these principles in instruction, we place ourselves in harmony with the process of human development. So far as we can follow this process of development do we always see that theory has grown out of practice, and science out of life, and that in life and practice both have found again their realization and their test. Now, if it be true that the child in a lessened manner passes through all the stages of development of mankind, then in the formation of childish knowledge the process to be pursued must be similar to that which has served in the formation of treasures of knowledge possessed by mankind. By means of effort, labor, and the predominating use of its physical powers, the child must be guided to knowledge and understanding. He must be guided in the same way in which mankind for thousands of years has unconsciously gone, and in which, in order to reach the truth, the exact sciences have, since Bacon of Verulam, consciously proceeded, viz., the way of induction. If truths are offered the child without trouble on his part, *i. e.*, if theory is always allowed to precede, and never to pass over into practice, then, *first*, the truths do not cling to the child; *second*, they are of no value to

him; *third*, the child never learns to value the labor of preceding generations for the establishment of knowledge and understanding, and, what is worst of all, he becomes satiated.

Notwithstanding all political and religious differences of individual aims, all later pedagogy proceeding from the empiricism of Bacon has more or less clearly, consciously and unconsciously, supported the proposition. No theory without foregoing practice; derivation of the former from the latter; application of theory in the practice. Hence Ratich and Comenius promulgate object instruction, and the latter the value of hand labor as well; hence the pietists introduce object and labor instruction into pedagogical practice, while the philanthropists take up both, and carry object instruction further; hence, cries Rousseau, "Things! things! Do not instruct by words, but by facts." Hence is Pestalozzi the apostle of objective instruction.

In an article in the Swiss journal,<sup>1</sup> Pestalozzi expresses his opinion upon the question of practical and theoretical instruction. In the second volume, he states his views as follows:—

"Man must seek his chief teaching in his chief work, and *not allow the empty teaching of the head to precede the labor of the hand*; he must find out his system of teaching principally from his work, and not be willing to base his work upon given rules; hence must the

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<sup>1</sup> Mann. Pestalozzi's Selected Works, Vol. III.

early teaching of every child relate to individual labor, and it may be well to limit it, so that neither teacher nor child can easily wander far from it.

"My readers, we certainly have to thank the nonsense with which our children's early years are diverted from labor and directed towards books for a world full of blockheads; and certainly the misery of a sickly age of an infinite number of human beings is prepared for them in the foreign, useless, unserviceable, indigestible, one-sided, poorly reflected knowledge of their early years."

#### X. SCHOOL HAND LABOR AND CHOICE OF A PROFESSION.

To prepare the pupil whom it gives up to life, for education in hand labor, is said to be the duty of the school, but its duty is not to exercise and train him in hand labor. Why it should be the duty of the school to make preparation for training in hand labor, and not to undertake this training itself, it is difficult to perceive. But every one can easily understand that it is the duty of the school to secure to the children the elements of professional as well as mental training. In the end, a people does not live by literature, science, and art, but by labor; and the small per cent<sup>1</sup> of us possessing middle and higher education

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<sup>1</sup>According to Dr. Engel, Journal of the Imperial Prussian Bureau of Statistics, in 1871, the male population over ten years of age in the Prussian states were distributed in the different

can enjoy these beautiful things only because the hand labor of the great mass of the people makes it possible. Then, from a social, political stand-point, it could be more easily and with more valid reasons proved that the education provided by the state ought to consider hand labor from the first, than it could be shown that from the first it must exclusively provide for mental training.

We really do not know what is to be understood by a preparation for education in hand labor, but we do know that even with the best intentions, our present school instruction can not be regarded as such a preparation; but on the contrary, it must be regarded as an essential factor for the disuse of hand labor. Upon this all men of practical experience are agreed.

It is asserted by the opponents that if the school co-operates in the choice of a profession, it fulfils its duties towards the trades. Opinions differ upon the

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grades of education as they are ordinarily distinguished, as follows:—

CLASSES.	PERSONS.	PER CENT.
1. Highest Education . . .	93,000 . . .	1,023
2. Middle “ . . .	193,000 . . .	2,122
3. Elementary “ . . .	7,885,423 . . .	86,703
4. Alphabet “ . . .	933,274 . . .	10,152

Then, 3 and 4 together, equal 96 per cent of the population possessing only elementary education, or none at all.

If the female population were reckoned, there would be a still lower ratio of higher and middle and a greater proportion of the lower. (See Starke, Privy Councilor of Justice, *Crime, and Criminals in Prussia, from 1854-78.*)

*how* of this co-operation. They have only this in common, that the teacher, because he best knows the pupil's talents and inclinations, by his advice to the parents and to the pupil shall exercise this co-operation. We shall soon see how far this belief is true. Here we shall merely suggest the impossibility of giving this advice wherever there are graded schools, or where teachers are assigned special branches only, and where municipal relations exist. The teachers of which branch should and will undertake this co-operation? And the teachers of which grade will do it, for the children go out into life from different grades? In this respect, the teacher of an ungraded school in a small village can do the most. In large places, knowledge of the social relations and conditions of the parents is out of the way of the teacher, and on this knowledge the whole co-operation must be based. Also, in small places, where the teacher very well understands the condition of the parents, this co-operation in the choice of a calling for children of the better classes will not be possible, because the parents will not listen to the advice of the teacher. The son must become whatever the parental property or parental opinion determines. In the choice of a profession, practically nothing of all the co-operation with the school remains. We must, therefore, look for the school to play a more effective part in the choice of a profession.

While, from the co-operation of the school in the choice of a profession, some understand that the school

provides for it in the manner just mentioned, — that each pupil shall pursue the calling for which he is fitted, and that poor but gifted children shall, by higher culture, be raised to a better social position, — others assign to the school the task of guiding more people to right callings. By right calling, however, they understand, above all, a handicraft, also, perhaps, a commercial or industrial business, but not the callings of teachers, scholars, and officials; in short, not the so-called liberal professions. Every one who does not wish to see men divided into castes will declare himself in harmony with the first-mentioned stand-point, which, from the point of view of the man, as well as of the educator and the national economist, is unassailable. We do not dream, therefore, of disputing it, but we cannot refuse to suggest that in the society of the present day, insurmountable difficulties stand in the way of the free choice of a profession. The choice of a profession to-day is not alone determined, and even not always influenced, by predominating talents and inclinations; but almost exclusively by reference to the income and social position which it allows. If a member of a prominent family have ever so much talent and inclination for carpentry, he can not become a joiner, because that is not a calling which secures to its possessor a desirable social position. Hence, so long as the different human activities are so unequally valued economically and morally, freedom in the choice of a profession is a delusion.

The advocates of the second stand-point start from the fact that we are suffering from an over-production of intelligence. They demand, therefore, that the school shall induce tradesmen not to have their sons study, but to learn handicraft, for a handicraft, they say, has a golden floor.

We may remark that not mechanics, but scholars, officials, advocates of liberal professions, talk in this way. Hand laborers themselves, even with spectacled eyes, can no longer discover the golden floor of their calling; they come rather in continually augmented numbers to the "dogs," or in other words, they sink to the proletarian classes. We never hear a mechanic speak of the golden floor of his profession. It only exists for modern *Don Quixotes* and social mountebanks. Whoever can still speak of it must have passed the last thirty years of social development in an enchanted castle. The large manufactory has torn away the golden floor, large enterprises stand upon it, and hand labor will never again get it back. Mechanics who direct their sons to the liberal professions know very well why they do so. They wish to preserve them from the misery of the mechanic's position. The parents, especially those of the lower and middle classes, in the choice of a profession for their children are guided not by vanity, but by a wish to make the children happy, happier than they themselves are. Since the parents very rightly do not perceive this happiness in the position of an ordinary paid laborer nor

of a mechanic, they assign their sons to the liberal professions, to be scholars, teachers, officials, or to that army of employees on railroads, in steamboats, offices, etc.

During the last fifteen years the crowding into the liberal professions has become so great that a very perceptible competition already prevails, but increasing numbers still press into them. Between 1871 and 1881, the number of students in the German universities increased by six thousand.

They amounted to, —

1871-72	.	.	.	.	.	.	.	14,676
1872-73	.	.	.	.	.	.	.	15,190
1873-74	.	.	.	.	.	.	.	15,809
1874-75	.	.	.	.	.	.	.	15,945
1875-76	.	.	.	.	.	.	.	16,191
1876-77	.	.	.	.	.	.	.	16,807
1877-78	.	.	.	.	.	.	.	17,611
1878-79	.	.	.	.	.	.	.	18,804
1879-80	.	.	.	.	.	.	.	20,042
1880-81	.	.	.	.	.	.	.	21,163
1881-82	.	.	.	.	.	.	.	22,038

The number of high-school pupils, as well as those of the real school, gymnasium, technical and polytechnical institutions, has increased in the same proportion. In other countries it is no better than in Germany. In the *Swiss Journal*, 1884, an architect stated that in a place like Zurich, often forty, fifty, even ninety applicants presented themselves for a vacant position, or for employment for a few months. "Hereupon," he continues, "since it is no better abroad, and in many



places even worse, the consolation of emigration vanishes. By a few comparative calculations, we must conclude that if for ten years not an architect were to be fitted for the calling, there would still be a lack of work and an over-supply of men." The German imperial government has recently disclosed the fact that there are in Germany 6,000 unpaid referees (counselors), and that to 4,204 positions for magistrates and state advocates, 4,684 candidates came. Hence, we should not thoughtlessly study. We shall soon be able to employ a doctor as cheaply as a factory hand. As we know by experience, polytechnic students were, a few years ago, at a low discount. With every day the army of mental laborers, as well as that of hand laborers, increases. How will it end? If the army of mental laborers become dissatisfied, and declare war upon society, then woe be to it; then it is lost. No social structure, even the most strongly formed, has ever yet withstood the united siege of head and hand laborers.

Mental laborers have, however, already become dissatisfied. A short time ago, a Vienna journalist described them in a masterly manner. Among other things, he said: "If the anarchists were to besiege Vienna, I should not on that account lose all self-control; but this small mass of discontented, propertyless intelligences seems to me fearful, a true scourge of God. Perhaps I am too anxious. Perhaps I am wrong to say, Who shall be the defence of your future, who shall protect us, who shall resist the oppo-

sition of pernicious theories? All these fiery cherubim of good inclinations have become discouraged and disappointed strugglers. Why shall they be enthusiastic for us? What have we to offer them? As the times now are, have we any hope, any inducement for them? Have they themselves, upon the whole, a fortune, a property, any kind of interest to hold from us?"

The danger from mental laborers which threatens present society is certainly great; but by warning people against the liberal professions, and advising the adoption of trades and business callings, we cannot remedy the over-production of intelligent people.

Over-production of intelligence is only a wave of the agitated sea of the social world. This sea can not be stilled by preaching against mental over-production, and by recommending that the stream of superfluous humanity be guided to trades, for, indeed, over-production in the trades has created the over-production of intelligence. To preach that people shall turn to trades and away from the liberal professions is to order the stream to flow to its source, instead of to the sea.<sup>1</sup>

By pushing to and fro on the labor market, human merchandise made superfluous by our present form of society, the labor question will not be solved, but only by removing the cause which makes superfluous men who are willing to labor.

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<sup>1</sup> Only those can trust to the efficacy of such a course who believe that social problems can be solved by tricks of legerdemain.

Furthermore, the propositions mentioned do not in the least affect the choice of a profession. To lead more people to find their proper callings can only mean to lead more people to those callings to which they, in consequence of their faculties and talents, feel themselves drawn, in which they can use their physical and mental qualities for their own welfare as well as for that of society, and which, therefore, secures to them the most satisfaction.

How each one can obtain that calling most nearly corresponding to his natural powers, is the vital question in the choice of a profession.

Now, it is clear that the propositions mentioned will not meet nor in any way answer this question. If the representatives of the liberal professions advise those who wish to devote themselves to the same to turn to trades, such a proceeding would smack, *first*, of selfishness; and *secondly*, would have no more bearing upon the solution of the problem of choice of a profession than if the representatives of trades, in order to turn competition from their callings, should advise that all of those who thought to devote themselves to trades should betake themselves to the liberal professions.

Why do so many people miss their callings? Because neither they themselves, nor their teachers, nor their parents know their talents, because neither education nor instruction offers opportunity to learn to know them. When have the powers and talents of

pupils been able to show and prove themselves? In the parents' house? Nearly every opportunity therefor is lacking. In the school? There the pupils have only to learn to receive and to reproduce; there they are nourished only with theoretical knowledge; there they can show their capability to receive and reproduce, but can not show their abilities for creation and invention. One side of their nature, and, indeed for most men, exactly that upon which the choice of a calling depends, the practical, active side, remains unnoticed by the school, and for want of exercise can not make its appearance.

The capacity to receive and reproduce is generally not by any means synonymous with mental power. The greatest men are those who have become what they are, not by receiving, but by independent labor, reflection, and investigation. This capacity stands higher than the ability to receive and reproduce. This, as well as the circumstance that in the school not all the human being, but only a part, is trained to activity and developed, explains the fact that so many thorough pupils accomplish very little in life, while the poor scholars become, perhaps, celebrated and able men. Indeed, the majority of the most skilful and celebrated men were bad pupils. If we would consent to deal in paradoxes, we might say to the teachers, "Have the greatest respect for the poor pupils, for they will become famous men."

If the school will contribute anything to the solution

of the problem upon the choice of a profession, it must allow industrial instruction a place on the programme, and so free instruction from one-sidedness. Only by industrial instruction will it be possible to become acquainted with the talents and powers of the pupil, and to direct him towards his proper calling. Labor will also make the pupil himself conscious of his capabilities. In the instruction, the difference between clever and dull pupils will become equalized. It may, perhaps, be shown that the pupil who, in theoretical instruction, is skilful, in practical work is awkward, and *vice versa*. By practical employment, the mind of one pupil will best develop; that of another, by theoretical information. This will lead to a correct estimate of the pupils among each other and on the part of the teacher. This correct valuation of all the powers must be in the highest degree beneficial to school life.

#### XI. THE DECLINE OF THE TEACHER'S POSITION.

The question, By whom shall industrial instruction be imparted? is by the majority of the opponents correctly answered. The teacher, and not hand laborers who are pedagogically untrained. In this respect they place the pedagogical stand-point at the head, but only in order to more effectively unite to it their lamentation over the decline of the teacher's position. Even now, they say, the time in the training school is not sufficient for the teacher to acquire the necessary edu-

cation ; but what will it be if he has to learn carpentry, lock-making, bookbinding, turning, carving, etc.? In this case, the teacher must degenerate into a mechanic. He will become a bungler, and the consciousness of professional dignity will be lost. What a frightful outlook for the teacher's position ! Fortunately, it is too fanciful. Let us be calm ! The learning of all trades in their full extent can and will not be necessary ; but only the learning of the elements of a number of handicrafts, or rather, we shall say, of hand labor. *The elements of all handicrafts, however, are as simple and as like each other as the elements of all sciences are simple and like each other.* The Klauson Cass efforts for the elevation of hand labor are depreciatingly mentioned, because of the suggestion that in six weeks, from five to seven kinds of trades, each of which requires several years' apprenticeship, can be taught. Now, we are the last to over-estimate the value of the Klauson Cass efforts ; they will not elevate hand labor, because it can not be elevated, but only transformed ; but they have proved to all the world that for learning an ordinary handicraft three or four years are not necessary ; that in a few months one can learn several kinds of hand labor. The results of every course of industrial instruction, as well as the performance of pupils in schools for hand labor, support this evidence. By a few hours' instruction, weekly, in the different departments of hand labor, it is astonishing to an impartial person what readiness

children will in a short time acquire. We have no idea what rich treasures of practical capability lie hidden in our children, and what immense productive power we, to the injury of the children and of the nation, allow to be arrested and perverted to dead knowledge, infectious weariness, crippling precocity, and poisonous idleness. May we soon gain this knowledge.

Let us compare the quickness and ease with which children appropriate skill and practical knowledge with the slowness and difficulty with which they advance in mental capacity and theoretical knowledge. If we inquire after the cause of this slow progress in the last, and the quick advance in the first case, perhaps no other than the following ground of explanation can be discovered.

Child nature implies action rather than abstraction, meditation, and receiving; the child's interest and capabilities are greater for practical than for theoretical instruction; by the first he is better satisfied and incited than by the last.

Now, should not the quickness with which children advance in industrial instruction, and the pleasure with which they work, be a suggestion to educators regarding the excellence and naturalness of this instruction? And should not educators who make, or pretend to make, the nature of the child the groundwork of their educational principles and efforts, first of all turn their most earnest attention to this subject? We think so.

The Klauson Cass and similar efforts were not needed specially to prove that a few months are quite sufficient for learning the elements of several handicrafts, for we have ourselves proved this. We have learned several trades, each in a few weeks, so well that we could employ ourselves creditably in them.

The teacher's profession has no need to fear this new task; it can be mastered, and will not lead to bungling and to loss of professional dignity. No one will say that one who has a skilful hand, and is experienced in practical things, will be the worse teacher. Why should hand labor lead to bungling, and not one of the superfluous subjects which during the last thirty years have been admitted to the programme of teachers' training? We might just as correctly say that for the teacher to receive only the elements of natural science and of historical and mathematical discipline leads to bungling. Bungling in teaching does not arise because the teacher is not instructed to the fullest extent in all sciences and skill, but it arises from the fact that in the effort to give them a great deal, the elements are very carelessly passed over. *Bungling arises principally because the teacher is too little instructed in the art of using these elements in the instruction, and can not impart to the pupil that which is of value.*

It never can, by reasons deduced from the subject itself, be proved that industrial instruction will cause the teacher to bungle in his calling. According to what we, in the foregoing paragraph, have



stated and proved in reference to the training and educative value of hand labor, we are authorized in asserting that the industrial instruction which the teacher receives will not hinder, but considerably advance and assist him in his calling. Industrial instruction will strengthen, deepen, broaden, and correct his knowledge. It will give this knowledge the first right relation to life, and elevate the understanding for life. Quite as important as this is the power to do, with which the teacher will by this instruction be furnished. In practical things, the young teacher of the present day is really a child, and can be imposed upon by every tradesman's apprentice or farmer's servant. His practical skill will make a great difference; in the esteem of the public he will rise not a little. The increased esteem of the public, with a feeling of security in the practical things of life, must impart to the teacher a very justifiable feeling of self respect. If by this the unauthorized self-esteem founded upon school knowledge, instead of upon social and moral worth, should be lost, it would only prove advantageous to the teacher's position. We are suffering generally from an undue estimation of dead theories as opposed to practical living, knowledge, and ability, and to the social and moral worth of men. Yet, perhaps, practical living knowledge is quite as great and surely quite as important as dead theories; and without question, he who only knows what is and can be taught in the schools, knows very little. Very many, and in

the end the best, things can not be taught because they can not be planned and formulated into theories. Above all, the influences which move the present time can not be taught, because they have not yet become formulated into a system.

Industrial instruction will not make a blunderer of a teacher, but will make him more skilful in his calling; and out of the practical training of the teacher, more profit to the school will grow than out of learned awkwardness. In the professional art school, in Vienna, it has been found that a young man who has previously followed some practical avocation, always finds his right place comparatively quicker in his new teacher's position (departmental teacher for institutions in which apprentices and workmen receive a higher professional development) than the one who brings with him merely school training. Moreover, among the teachers of common schools the same is found to be true. We may here remark that a large number of prominent educators and schoolmen had been practically employed before their educational activity began.

In the normal school, industrial instruction will find a place without theoretical instruction being abridged. We have already explained the reasons for this (Chapter V., VIII.). Here we shall merely remark that if industrial instruction has been pursued in all the previous school grades, it will require but a limited place in the programme of the training school.

The training of teachers for industrial instruction offers no difficulty, and by its introduction into the school will not (as has been asserted) by any means involve the necessity for two kinds of teachers. The teacher can very well master the new task, and if his prejudice has disappeared, will very gladly undertake it. Probably the imparting of industrial instruction will become a favorite employment of the teacher, because the change refreshes and the labor gladdens him.

## XII. THE UNION OF STUDY AND LABOR IN THE SCHOOL.

Just as in the public school, the teacher in the school of study is, at the same time, to be the teacher in the industrial school, so study and labor will not be separated; thus practice and theory and theory and practice will go hand in hand. It is not sufficient that the work of the industrial school be selected according to pedagogical principles and pursued with educational purpose; the instruction of the school for study must also be connected with it. If the labor of the industrial school be separated from theoretical instruction, then, notwithstanding its educational purpose, it loses much of its attraction and power as mental training. On the other hand, if the theory be not embodied in the labor, the pupil will not be awakened to the real life; the theory will die, or make the pupil weary. The principle is this: let that which has been created by the pupil be theoretically comprehended, and let that

which is theoretically comprehended be constructed. In creating, let the mind of the child be elevated to higher discernments and views, and let what is mentally comprehended be physically expressed, so that it may fix itself in consciousness, and may show how it can be converted to practical use. We can state with satisfaction that the advocates who wish industrial instruction to be pursued as preparation for trades, without any reference to the school, are very few in number. The predominating number of the friends of industrial instruction, although they wish it to be separated from the school of study, wish to unite it with theoretical information. From this stand-point to the organic union of study and labor in one school the distance is naturally not far. The present condition of juxtaposition is grounded, we well know, on the actual relations, but it is nothing more than a necessary expedient. As has been demanded by several great educators, the aim must be to secure an organic combination. Francke based several branches of instruction upon labor. Rousseau advocated the instruction of Emile by labor, and wished to see the two united. By labor, an interest in theoretical instruction will be created. Pestalozzi says: "This A B C of the exercise of the limbs (here the method of industrial instruction is understood) must naturally be united and brought into harmony with the A B C of sense exercises, and all previous exercises of thinking with the exercises of number, and teaching of form." Fichte demands

that in national education, study and labor shall be united.

The friends of industrial instruction who wish to see the school for labor go side by side with the school for study may be divided into two groups.

In one group belong all those who, like Ziller, regard hand labor as a necessary preparation for life, but deny its value for the harmonious training for mankind. We hope we have shown clearly how erroneous this impression is. Here we merely suggest that it is in the highest degree strange that necessary preparation for life should be placed in opposition to the general training of mankind. We are of the opinion that it is no opposition, but an inseparable element of human training. For, without preparatory training for life, what is the value of general human training? Ziller banishes industrial instruction to side classes as an unpedagogic manner of instruction. From what we have already said, we can judge with what right he does this. Ziller always wishes the connection between the schools of labor and study, or, as he says, between schools of teaching and education, to be preserved. The two must constantly work together, and go hand in hand with each other. The boundaries which Ziller draws between the two are purely doctrinal, and by practice will soon be effaced. As soon as the fact is recognized that in training and educative value, industrial instruction is equal to the best, and indeed superior to most branches of instruction, they must disappear.

To the second group belong those by whom the method of this union of the schools for study and labor is not yet discovered, or appears not yet sufficiently perfected. This objection has its authority, yet it is not of a theoretical, but of a practical nature.

If only a sense of the necessity for such a union has become general, and we seek the method, the lack of method will be easily remedied. So far, however, very few have searched, and we cannot wonder that it is not yet or not entirely discovered. With regard to the method of union of instruction in labor and study, as well as to the method of industrial instruction in particular, Pestalozzi, in what he says of his still undiscovered A B C of the art, touches the point. It is, however, quite natural that a thing which no one seeks is seldom discovered; but if we would seek it with perhaps a little of the earnestness with which we are accustomed to seek even small advantages in financial schemes, then *it would be very easy to find, and once found, it would certainly be a great gift to humanity*. If mankind were compelled to seek it, then it would be most quickly discovered, for necessity is the mother of invention.

How do we think the combination of labor and instruction can be secured? Perhaps according to the following principles and opinions. Explanations in detail cannot have a place here.

Labor is the centre of youthful education and training. Since we are convinced, however, that there is

no centre, where all instruction, according to the educational stand-point, can unite, then we cannot regard labor as a centre to which we desire to unite all instruction. Not all of that which the child is taught can be united to the child's labor, because not everything can be made by the child, and very much can not be at all represented by labor. The observation and the word must also instruct.

The genuine Froebelian kindergarten is to be organically united to the school. Until the tenth year, labor stands in the foreground; from the tenth to the thirteenth year, labor and instruction can be equal in importance; and from the thirteenth to the fifteenth, instruction will be in the foreground. While, until the thirteenth year, labor essentially precedes instruction, from that time forward can instruction lead to labor; while, until the thirteenth year, the work is principally done from models, the pupil may now work from drawings, until he is able to make his own designs.

The first instruction in arithmetic is connected with stick-laying; to this end, the sticks must indicate units of measure. Step by step with the work goes further instruction in arithmetic. Form relations of labor products as of material for labor are conveyed and expressed in measure, weight, and value. With the paper and pasteboard work, instruction in space and drawing is connected. Modelling precedes drawing. Before geometrical instruction is given, geometrical

constructions with small sticks are made; or they may be cut from paper, embroidered, grouped in colors, and pasted. Instruction in elementary stereometry is preceded by the construction of paper boxes in different forms and for different purposes, as well as the construction of stereometrical bodies which serve no practical purpose. Instruction in nature knowledge, *i. e.*, natural science, is connected with labor in the school-garden, working with soil, animal and vegetable matter; instruction in physics with the construction of levellers, elevators, rollers, suction pipes, etc. In the higher grades the branches of instruction lead again to labor. Leaf, flower and fruit pieces, parts of the human body and of the lower animals, may be modelled and carved. The things made may perhaps also be drawn. Magic-lanterns, camera-obscura, weighing machines, and other objects useful in instruction may be constructed. The higher classes may provide the lower with material as well as models for observation and instruction. The description of working material, tools, manner of labor, offers a finer choice and a better quality of themes for discussion and essays than description of battles never witnessed, and the discussion of scientific and literary questions.

Yet since this subject is not the aim of our work, we must not digress. These suggestions must suffice to show how easily, naturally, and unconstrainedly the union of the school for study and labor may be effected.



## XIII. METHOD OF INDUSTRIAL INSTRUCTION.

The opponents of industrial instruction assert that in the Klauson Cass efforts there can be no question of practical form and peculiar method. Now, although this reproach does not touch industrial instruction, we shall accept it as referring to every phase of industrial instruction. There, however, it does not apply, for in this same instruction, practical forms and peculiar methods can be discussed. Of course, he who does not wish to see and hear will not see the sun nor hear the thunder. Certainly, neither the practical form nor method is finished, but the foundation work to this end has been done.

In order to be able to assert that industrial instruction is not yet practically systematized and methodized, we must ignore the earnest work of many thorough educators and the literature of a century. The reproach regarding the impracticable form of industrial instruction, whatever notion may underlie the words "impracticable form," is entirely unfounded. If the idea be so understood that it can be said that industrial instruction is not yet so organized as to offer practical benefit for life, then it is entirely opposed to every kind of industrial instruction, and besides, an assertion is made which the experience of centuries will refute. Furthermore, if it be understood to mean that industrial instruction is not yet fitted to be united with and to be of service to theoretical

instruction, such an opinion will be also refuted by experience, for in many celebrated educational institutions this union and advantage to theoretical instruction has already been tested. If these two objections against industrial instruction were not disproved by experience, they could by logical proofs be very easily shaken.

Finally, if by the impracticable form of industrial instruction we may understand a form which is not yet sufficiently perfected to be introduced into the organism of the public school, this objection may be met by stating the fact that industrial instruction has been introduced into the public schools of France, and has long held an important place in the academies. Shall not that which is possible in France be also possible in German countries which are richer in educational experiences and opinions? And shall that which is good and possible for private institutions be bad and impossible for public education? Perhaps labor is recommended as a means of training and education for neglected and feeble-minded children, and rightly, too, for the educators in houses of correction and institutions for the feeble-minded cannot speak too highly of the training and educational influence of labor. Is the conclusion unfounded that that which as training and education works so effectively on the feeble-minded and neglected will work still better upon the healthy-minded and the cared for? And can the public school so easily exclude such an important

means of discipline and education? Even the most outspoken opponents recommend industrial instruction for the poor. They appear to appreciate strangely the historical fact that, until now, industrial instruction was not employed for the poor, but essentially for the training and education of the rich and most distinguished people. So it was regarded by Locke, Francke, Basedow, Salzmann; so it is to-day regarded by Keferstein, Barth, and others. Yet we must accept the essentially educational point of view. For social as well as educational reasons, we would be obliged to take the field with all our might against an industrial instruction which bears in itself the mark of contempt and civil inequality. It would be a degradation of labor which could not have been worse in the old slave states, and it must be calculated to sharpen rather than equalize social contrasts.

In German countries industrial instruction is of a sufficiently practical form to warrant its introduction into the organism of the public school.

Germany has had the good fortune to bring to the front a man who has not only recognized the far-reaching signification of labor in youthful training and education, but who has practically arranged and systematized labor for early childhood. We mean Froebel, the founder of the Kindergarten. He has done the most important and the hardest work of practically systematizing and methodizing industrial instruction. We only need to build carefully upon it. Industrial

instruction in the school signifies only an extension of Froebel's idea. Already, long before the appearance of the industrial-instruction movement, this extension was taken in charge, and had borne its fruit. A rich literature, richer than upon many other subjects, already exists. Shall nothing useful be found in it? Surely there is much to be found, and we assert that *in order to bring together the most rational plan of industrial instruction, only a sifting choice is needed.* A subject of instruction which, like labor, unites a practical system and method for the earliest childhood can offer no difficulties against a wide development for the school-going age; and it offers none, for in all cases observation can seize the idea to be embodied, and an uninterrupted progress from the physically and mentally simple to the complex, from the near to the remote, from the known to the unknown, is always possible.

The mutual instruction of the pupils by each other can be applied not only without injury, but with advantage, as is the case to-day in the schools of technology. The instruction may be class instruction; in the higher grades, grouped and individual instruction is admissible. Kinds of work are chosen from an educational stand-point, with regard to theoretical instruction and especially to the prominent needs of the country.

Granted that industrial instruction is not yet in all its details practically systematized and methodized;

have we on that account a right to look down upon this defect, which after all is only relative? Among our present school subjects, are there not perhaps some with primitive systems and incomplete methods? Has instruction in morals and manners until now been practically systematized and methodized up to the teaching of citizens' rights and duties? And have we not for several decades been disputing about methods of instruction in history, without coming to any agreement? Or during the last fifty years has not a number of subjects been introduced into the schools, whose practical system and particular methods at the time of their introduction could hardly be spoken of? Before a subject has been widely introduced, is it at all possible to perfect a method of instruction for it?

The reproach of lack of practical system is always raised against every innovation; but it has never yet hindered its being introduced and carried through. It is entirely insufficient for the refusal of a justifiable innovation. Those who oppose the introduction of such with such an objection, do not know what logical heroes they are. They might as well forbid that any one should go into water for the first time, and argue that swimming is not yet practically systematized. As if it could be practically systematized without going into the water! This reason has never been sufficient to keep us from innovation, and rightly, for if it had, we should have remained in the deepest barbarism. Civil society would not yet have been introduced,

because under feudal influences it could not have been practically systematized. The principles of object and objective instruction would not yet have been introduced,<sup>1</sup> for under the dominion of the catechetical word instruction and learning by heart, it could not have been practically systematized and especially methodized, etc.

*In so far as in small institutions industrial instruction can be practically systematized and methodized, it has been done, and reproach as to failure in practical system and method cannot be brought against its general introduction. Practical evidence has sufficiently shown that industrial instruction has a high disciplinary and educative value, and can only with the greatest advantage to theoretical instruction become united with it.*

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<sup>1</sup>By *object instruction*, reference is made to the object lesson; *objective instruction* implies all instruction which requires the exercise of the observing powers.

## CHAPTER VI.

## WHAT DO THE CLASSIC EDUCATORS SAY OF INDUSTRIAL INSTRUCTION?

IN the first paragraph of the last chapter we pointed out the characteristic fact that the opponents of industrial instruction avoid the principal question, viz., that of the educational necessity for hand labor, or its injurious influence. In the same way, or rather with much narrower considerations, they pass over the opinions of the classic educators in favor of hand labor. And yet we should think that those who say the opposite of what the great educators have expressed, and those who recommend not to do what they (*i. e.*, the great educators) have done, might feel it a duty to show how sadly the celebrated thinkers and experts were in error in regard to the disciplinary and educative value of hand labor.

So long as this error is not exposed, we cannot be required to exchange the authority of the classical educators for that of the opponents of industrial instruction, and especially we cannot reckon all the prominent schoolmen among these opponents.

In the course of our argument, we had an opportu-

nity to present a few verdicts of famous educators in favor of hand labor, and we may be allowed to quote a few more.

Comenius argued for it somewhat after the following manner: "The human body needs movement and occupation."

Hand labor can furnish these, and for this reason, in order to prepare for life properly, it is necessary. Little children must become accustomed to labor and constant employment, whether this be of earnest work or play, that they may learn not to endure weariness. Older children ought to know the more important things about trades, if only that they may avoid being too grossly ignorant of what is going on in human life, or it may be that the natural inclination by which they are most strongly drawn, may the more easily show itself (choice of calling). "To the thing worth knowing, the practicable ought to be united; the activity of deeds can be joined to the knowledge of things." All that is to be learned must be learned actively. Together with the senses, the mind, heart, and understanding, the hand shall constantly be refined. Locke demands that his noble pupil shall learn one real handicraft; yes, perhaps two or three, but one particularly. He emphasizes the educative and moralizing value of hand labor. Children shall be instructed to make their own playthings, for this will accustom them to look to themselves and to their own efforts for help in their emergencies. They may thereby learn moderation in



their wishes, attention, industry, reflection, ingenuity, and economy, — qualities which will be useful to them as adults, hence cannot be too early learned nor too deeply grounded. Rousseau says: "I insist that Emile learn one handicraft. If I employ a child in the workshop instead of chaining him to a book, then his *hands work to the benefit of his mind*." He becomes a sage, and thinks himself to be only a laborer. Emile must himself construct the apparatus for instruction in physics, "for," says Rousseau, "it can not be disputed that from things which we have in this way learnt (*i. e.*, by work), we receive much clearer and more exact ideas than those we appropriate through the instructions of others; besides this, by not accustoming ourselves in a cowardly and slavish manner to submit our reason to the authority of another, we sharpen the mind to find relations, to connect concepts, to invent instruments, far more than we should by accepting everything as it is offered, and thereby leaving the mind to relax into inactivity." By accustoming him to exercise and hand labor, Rousseau will imperceptibly create in Emile a taste for reflection and study. (Labor is then the means for awakening and training the mental powers.)

Francke, as well as Basedow and Salzmann, introduced hand labor into their schools. At Francke's, in the school for children of the higher classes, some branches of instruction were based upon labor, and the instruction led to labor and was supplemented

by it. As we have seen, Salzmann expresses himself upon the mental training power of labor exactly in the same way as Rousseau and Locke, but he emphasizes its moralizing influence more than either. He rebuts the objections of pedagogues against industrial instruction with the cutting remark: "The greatest number of these objections arise from the fact that the fewest teachers have learned hand labor; hence they will try to condemn this kind of education and make it ridiculous." Still more energetically than all the predecessors, Pestalozzi expresses himself in favor of hand labor. Only listen:—

"With every day it became clearer to him" (to his schoolmaster Glüphi) "*that industry, the physical activity of our race, is the true, sacred, and eternal means for the union of the whole circuit of our powers into a single, common force, the force of humanity. Every day he saw more how industry trains the understanding and gives force to the feelings of the heart; how it guards the powers and purity of life from the deadly wasting of the senses, closes the gates of the imagination against error, blunts the loquacious point of the idle tongue, preserves the sense of duty in our nature from its ruin, leads away from foibles, preserves us from regarding our flippant chatter about the deed as the deed itself, and our gabble over heroism as heroic greatness, and our useless empty dreams about the divine forces of faith and love as these forces themselves.*" These higher views of human development were the reasons

why he admitted into his school the turning-lathe, the joiners' bench, the bobbin, sewing cushions, etc.

By the side of the eight propositions in favor of hand labor here presented, and by the side of those we have already cited, the following propositions may be selected and formulated from his works, especially from his principal work, "How Gertrude teaches her Children," Letter XII. : —

1. Only by the development of the physical activities can man attain inner satisfaction.

2. The education of the activities does not coincide with the education in knowledge; the former is not limited to the latter, but surpasses it, and for the people is more important.

3. Industrial instruction is more educative than instruction in knowledge. The latter, in its one-sidedness, is a hindrance to the development of physical skill. "In order to be able *to do*, we must in every case *do*; in order to know, we need in many cases only remain passive; in many cases we need only see and hear.

4. Hand labor is the foundation and guide to morality.

5. Without hand labor no harmonious development, no human discipline.

As we are not writing a history of industrial instruction, we must stop here. The foregoing suffices to show that among the great educators the greatest harmony prevails in regard to the disciplinary and educative value of hand labor, as well as to the necessity for it.

## CHAPTER VII.

## EDUCATIONAL AND SOCIAL NECESSITY FOR INDUSTRIAL INSTRUCTION. — SUPPLEMENTARY RÉSUMÉ.

WE have now finished with the objections of the opponents of industrial instruction, and have shown that they are partly without foundation, and partly do not in any way apply to the subject in hand. In doing this, we have found opportunity to bring forward nearly all our reasons for the educational and social necessity of industrial instruction. It remains, however, for us to supplement some and to secure a better view of all.

Man is not only a speculating, but in a much higher degree, a willing and acting being. This last side of human nature is prominently shown in the child. The child wills,<sup>1</sup> and acts much and thinks but little. Our present school, however, fosters chiefly the speculative side of the child's nature, and neglects the willing and acting. It is guilty of a great one-sidedness, and violates the laws of development in the child. The child has a natural inclination for move-

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<sup>1</sup> The word *wills*, here, is in the sense of wishes or desires; does not refer to *will*, so called.

ment: the school compels it to sit still in the same spot for hours. The child has a natural inclination to employ itself: the school forces its attention towards theoretical instruction, for which it has no interest, because the benefits lie far from its needs and its circle of vision. Because the child has no interest in instruction, we can only by artificial means gain its attention and concentration. The one-sided, artificial mental irritation and tension, without lively interest on the child's part, causes mental over-irritation and weakening. Much sitting in the same place, without simultaneous movement of the other parts of the body, is, for the physical development, in the highest degree injurious. The improvement of the body by practical activity is entirely neglected, and, owing to lack of timely awakening and employment, a multitude of valuable, practical, artistic talents and capabilities come to nothing. The whole instruction has too little reference to practical life, and hence, instead of preparing one for it, alienates one from it.

These objections can justly be made against the school, although it must be said that it is not alone guilty of the injuries mentioned. The school, too, is a development, neither planned beforehand nor preceded by insight. According to the better views gained, it is our duty to improve that which it is at present. Before these glaring evils it is unmanly to hide the head like the ostrich, and to declare that they do not exist, and that merely because one is a part of the

school, because one is a teacher. We teachers did not make the school, and hence are not alone responsible for its evils, which naturally are only obvious to an advanced insight. Quite as much responsibility for these evils rests upon the authorities, the statesmen, and the people. Hence, the improvement of the school system is a question which concerns not only the teacher, but the whole nation. If upon this point the teachers once get a right position, they will grasp all questions of school improvement with the right objectivity and in the right light.

Without doubt, the evils mentioned of our present school could be removed by industrial instruction, pursued according to educational principles and with pedagogical aims.

Industrial instruction is throughout not only a powerful means for the promotion of objective instruction; it is not only the best kind of objective instruction; it is not only an extension of objective instruction, as has already been said by its advocates; but it is more than all that, for it has:—

*First.* A great educational value.

*Second.* A significant mental and physical disciplining power.

*Third.* A deep-reaching social and moralizing influence.

The great educational value of industrial instruction consists in:—

1. That it satisfies and cultivates the child's in-

instinct for activity; that it nourishes this instinct and directs it towards the beautiful and the useful, and that by it the most important part of the child's nature will receive justice.

The unfolding of the good side of human nature, and for the nature of man to receive its due, means, however, to remove the ground support from the so-called bad sides of human nature, and arrest their growth. As the devil is a fallen angel, so are most, if not all, the so-called bad sides of a man merely suppressed, arrested, crippled, and misguided good sides of his nature. Human nature is neither good nor bad; it only becomes bad, *i. e.*, it turns against the interest of the species, and if it is slighted, avenges itself, just as a law of nature when it is slighted avenges itself. The undervaluing of the instinct for activity, and the impossibility under existing social relations of giving it its due, — these are the sources of a great multitude of human faults and infirmities. Let us seek to stop them (*i. e.*, the sources), instead of merely trying to remove their effects.

2. That it awakens a lively interest and pleasure in labor and its products, and enables the child by its own efforts to secure this interest and pleasure. The articles produced by the labor of the child, articles of real use, create in him a feeling of capability, awaken his self-confidence, and give him inner satisfaction.

Our whole material as well as mental culture rests

upon labor; hence, the principal task of education must be to awaken and educate the rising generation to an interest and joy in it, for this at the same time implies the advancement of culture.

Pleasure in labor provides against idle, foolish, immoral dissipation. The feeling of capability and of his own usefulness raises the feeling of dignity and self-confidence in the child, and preserves it from error. The living interest in things worthy of effort and to be reached by his own strength, closes the door on all unbridled wishes and weakening dreams, with all their enticements, and the satisfaction attained by labor returns constantly to that from which it flows,—to labor.

3. That it, without artificial means, forces the child to concentration, attention, and perseverance. Whoever will accomplish anything by labor must concentrate himself, must be attentive and persevering, otherwise it will not succeed, and the mistakes are more easily manifested than in school work. Besides, he who is interested in a thing observes gladly, concentrates himself willingly, and perseveres without murmur.

4. That it nourishes thought and will, and directs it towards the good and the useful, and permits and teaches to transform both into the deed, which again warrants a high satisfaction and awakens dignity.

Thought needs a subject; the will needs an aim. If no attractive, permissible object be offered the thoughts, then they seize upon improper ones, and if



no rational aim be set for the will, it chooses for itself an irrational and bad one. History and experience satisfactorily prove the correctness of what has been said. A worthy object of childish thought, however, is labor.

The significant educative power of industrial instruction lies in : —

1. That it awakens and trains the powers and talents which would otherwise remain dormant and untrained.

It is a fact that many talents, if at an early age they are not properly fostered, become arrested. Once arrested, it is very difficult for them to be called forth again, and still more so for them to be developed. The present school for study hardly awakens and trains the artistic talents at all. Thousands of talented persons and hundreds of artistic geniuses miss their destiny and are lost to humanity, and fail in their callings as well as in their lives. The history of many a disappointed life and even of many a criminal's life is nothing more than the tragical history of arrested artistic talent or genius. Oh ! they are often heart-breaking, those histories !

Shall the rich artistic powers always be lost for the beautifying of life ? Shall thousands forever stagnate mentally because the point of Archimedes from which their mental life would have originated (we mean artistic interests ) was not sufficiently fertilized ?

2. That it sets in activity the greatest imaginable

number of senses and powers, and secures knowledge and information which no other instruction can secure.

There are knowledge and understanding which can only be gained by labor, and it is an educational experience much too lightly valued that the minds of many children only rise by practical activity, and that the mind so aroused is of the stronger and more progressive kind. Only the original mind, however, is progressive; only the original mind can educate itself by self-activity.

3. That it first gives a foundation for much theoretical instruction, and places the aim intelligently before the children.

4. That it must serve as a test for much theoretical instruction and as sufficient reason for its necessity and practical utility, — at least for the understanding of the children. What appears to us established, necessary, and practical does not necessarily seem so to the child. If he is not educated to be a faithful echo, then the proofs for everything must be laid open before him. His mind as yet is too weak for theoretical proof, or he does not believe in it, or the theoretical proof is difficult to produce; then it must be practically performed.

5. That it secures knowledge and understanding much more easily, quickly, impressively, and hence more lastingly. That which is apprehended through many senses and powers gains admittance into the

mind more quickly and easily, makes a greater and more lasting impression. That which has gone through the hand, foot, and head, so to speak, is only really our property.

6. That it teaches the child to value, observe, investigate, test, compare, and invent.

He who will construct an object, whether after a model or a drawing, must take careful account of the important relations of the three dimensions; the working material must be chosen and tested in regard to size, color, and quality; then the tools must be chosen and examined as to usefulness; and finally, in working, he must keep in mind the measure, and compare the form of the whole as well as of the individual parts.

During the work, involuntary observations of the materials and tools will be made, and investigation and comparison will be employed; continually estimations, measurements, and verifications are necessary. During the work a crowd of contingencies and difficulties which compel observation, investigation, comparison, and invention, make their appearance.

7. That it exercises the senses, hands, and members, makes them skilful in practical activity, and keeps the body sound and fresh.

All that has been said of the educative value of industrial instruction applies also to its refining influence, for everything that educates also refines; as conversely, all culture educates, although to a much less degree. All education is discipline, but not all discipline is

education; whether and to what degree culture is educative, depends materially upon the process of attaining it.

In favor of the social and moralizing influence of this branch of instruction, we could, in the first place, advance what we have said of its educative value, for under education in a narrow sense we understand only a moral completeness or perfection. Morals and morality, however, are of value chiefly in social life. They express, in the first place, what we owe to others and to ourselves in regard to others.

Furthermore, the moralizing social influence of industrial instruction lies in:—

1. That it comprehends the whole man from the good side of his nature, and brings only his good powers into action.

2. That, in the most significant manner, it demands and exercises the self-activity of the worker. Self-activity, however, is the way to morality. Only action can train the character, and only in action can it become apparent. Also, only by action can morality come to light. A mere passive morality, which only avoids the bad, but does nothing good, is but the beginning of true morality. The great Florentine (Dante) places in the fore-court of hell those who have avoided the bad, but have not earnestly striven after the good.

3. That it places a barrier against idleness as against the beginning of all crimes.

Children who have learned to employ themselves according to their inclinations will not lounge round and fall into all kinds of bad habits; under the hardest exterior circumstances, they will find a means to satisfy their pleasure in a favorite employment, in building, fashioning, and construction. The parents will gladly satisfy the children's wishes in this direction; the money which at present is paid out for useless play-things will suffice to furnish simple tools and working material.

4. That it teaches the child to know, love, and respect labor, to appreciate correctly the value of labor products, and so to comprehend the social value of hand-laboring people.

He who has never performed hand labor does not know how to value it, its products and the working class of people. The exchange or money value of a thing furnishes a poor standard by which to judge of the trouble of its manufacture, for it depends upon existing economic laws, and not upon the industry, capability, and trouble expended. The rich man seldom knows that to construct an article which he buys for one or two marks or francs, one must have given a long day's trouble, and have sweat or frozen and starved over it. Indeed, if everything could give the history of its construction, we should often shudder over human misery, and we should think and act more humanely. It is a great misfortune for a state that the classes called to its guidance have seldom

learned hand labor. If this were the case, we should have attained a true social reform and greater morality among the whole people. Our moral conduct depends materially upon our valuation of men and things.

5. That it leads the child to a recognition of its powers as well as to a recognition of their limits, and teaches him to value the powers of others as well as the people themselves.

Knowledge puffs up; labor, on the contrary, elevates, and at the same time preserves us from conceit, for only by *doing* do we become conscious of the limits of our knowledge and capability.

6. That it makes a proper choice of calling possible, for only by self-activity and not by reception and reproduction is the individuality of the pupil developed, and only self-activity teaches the pupil to know his powers and inclinations.

7. That it promotes the interest of the parents in the school, and compensates for the contrast between school and life.

Because for the majority of the people the school is so little an institution for preparation for life, are so many of the parents without interest in the school, and, indeed, unfriendly towards it. When the propertyless man goes out into life, his school knowledge as a rule is of very little use to him, and so he gains the idea that the school is of no use at all, or that it is really injurious. But if the school, by means of industrial instruction, prepare better for life, then the interest of

the great mass of people will increase, and their antipathy disappear.

#### CONCLUSION.

We hope we have succeeded in proving the educational and social necessity for industrial instruction. That, however, which has become necessary in the world, whether by progressive knowledge or by changed relations, does not admit of refusal, but like a power of nature breaks its way. Hence, the subject of industrial instruction, notwithstanding the antipathy and prejudice of capable schoolmen, will make its way. We understand these men well. By offices and honors they are too much connected with the school, and also by trouble and struggle they have even grown too old with the school to be able to enter upon new ways with satisfactory mental freshness. They yield to a law of nature, and remain behind. Their past will be for them the drag-chains of progress. We honor the labor of these men as of all labor that has helped to build up the public school, but we do not consider it as complete and finished ; we wish to continue it. We wish, above all things, to repair all neglect, to advance all that has been retarded, and to prepare a place for labor in the school. In doing this, we act according to the views, and in the spirit of our great educators, and fulfil the high aim of the public school, — *to train the children to be mentally active, socially* **USEFUL, AND MORALLY GOOD MEN.**

Labor ! thou that raisest the humble, consolest the sad, guidest the erring into the path of virtue ; thou comfort of the weak, salvation of the poor, and joy of the strong ; thou help of the fallen, staff of the stumbling, and comfort of the good ; thou image of the highest power, that raisest us to a likeness to Divinity ; thou that hast reared all mankind, and brought them out of barbarism ; thou wilt exercise thy mighty disciplinary and educative power upon the plastic material of the rising generation, and through thee will be developed a more beautiful and better youth, that shall be a joy and a blessing to the world.



# MANUAL TRAINING.

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*"When a man teaches his son no trade, it is as if he taught him highway robbery."*

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## *Wood-Working Tools: How to Use Them.*

A handbook for teachers and pupils. Edited (for the *Industrial School Association*) by CHANNING WHITAKER, Professor of Mechanical Engineering at the Massachusetts Institute of Technology. 5¼ by 7½ inches. Cloth. 104 pages. With 80 illustrations. Price by mail, 55 cents. Introduction price, 50 cents.

A COURSE of simple lessons in the use of the universal tools: the hammer, knife, axe, plane, rule, chalk-line, square, gauge, chisel, saw, and augur. The lessons are so amply illustrated that any bright boy will find the book alone a great help in his endeavors to learn the right way of using common tools. Nearly half of the illustrations were taken from life, and are efficient substitutes for lengthy and important printed instructions. The book is the result of actual experiments successfully made by the Industrial School Association of Boston. It will help people, who are interested in systematic and efficient industrial education, to begin it.

"The Industrial School Association conducted small industrial schools at its own expense. It set itself to prepare a manual of instruction, based upon the actual experience of its teachers, with the aid of other teachers, in like schools in Gloucester and Cambridge, and this book is the result. Of course, its size is no indication of the labor and thought and money it has cost. As far as it goes, it aims to teach, and it does teach, how to use wood-working tools with singular thoroughness and intelligence. The Rev. George Leonard Chaney, President of the Association, writes a brief introduction, in which he says: 'A single workroom, like the one used by this school in Church Street, in any city, for the six months from December to May, during

which time it usually lies idle, with very little expense beyond the original plant and a moderate salary to the teacher, would meet all the wants of three or four of the largest grammar schools for boys. Three such supplementary schools, if used in turn, would amply satisfy all the rightful claims of industrial education of this kind upon the school system of such a city as Boston. At so small an outlay of attention and money might the native aptitude of the American youth for manual skill be turned into useful channels. In so simple a way might the needed check be given to that exclusive tendency towards classical rather than industrial pursuits which the present school course undoubtedly promotes.' We heartily welcome this little book for what it is, and of course what it promises, as we hope, for industrial education." — *Boston Daily Advertiser*.

"Industrial education is becoming a popular theme, and for the welfare of society it is to be hoped that it will receive more and more attention. With the common-school system it may properly be intimately combined. No one should say aught against purely literary and scientific learning, but since so few are destined to a sole use of these acquisitions, in after-life it is important that knowledge available for the million should be more freely bestowed upon the young than it is. Since the lapse into disuse of the apprentice system, skilled workers for their efficiency have pretty much been left to their own resources in acquiring knowledge of a chosen occupation. To remedy this defect in the training of children, industrial schools, and special departments in ordinary schools, are now desired to meet the necessary want. As a text-book for this purpose, Messrs. D. C. Heath & Co., Boston, have published 'Wood-Working Tools: How to Use Them.' It is an illustrated manual of fourteen chapters, and aims to promote the handicraft required in all trades. To any youth with a native aptitude for the use of tools and a taste for mechanical work, it has all the requisites of an elementary volume, besides being as entertaining as it is plain and useful. The several chapters treat very fully of striking, splitting, cutting, planing, sharpening, adjusting, marking, sawing, reducing surfaces, squaring surfaces, boring, joining, finishing, etc. The work has been of great benefit in the industrial schools of Boston and elsewhere. Throughout the country it may with profit be universally adopted in every school, public or private, where young persons are taught." — *Dubuque Trade Journal*.

*The Bureau of Education at Washington has shown a great interest in this book, and sent it to several schools of science, who acknowledged its receipt by the following letters of commendation:—*

**C. F. Brackett**, *Prof. of Physics, College of New Jersey*: It is an admirable little book. Every boy should be taught just the things it so well presents.

**Chas. Babcock**, *Prof. of Architecture in Cornell Univ.*: I commend it heartily.

**Robt. W. Doutheat**, *Sec'y for School of Mines, Rolla, Mo.*: I feel free to say that I have never before seen a book which so completely and satisfactorily sets forth the true methods of using the tools needed by wood-workers.

**A. Vander Naillen**, *Pres. of School of Science, San Francisco, Cal.*: I really think it not only very useful, but the idea full of possibilities. If followed up by other books on similar subjects, and as copiously illustrated, the idea will be a civilizing one, and the benefit to our rising generations simply incalculable.

**Richard Mott**, *Pres. of Toledo (O.) Univ. of Arts and Trades*: This is a good work. An intelligent scholar can acquire from it a fair elementary knowledge of the trade without apprenticeship.

**Chas. H. Benjamin**, *Dept. Mech. Engineering, Me. State Coll.*: It will

doubtless be adopted as a basis for a course of instruction in wood-work.

**The Nation**: It is a model of clear and concise directions.

**N. Y. Times**: It wastes no words, but by terse text and apt illustration describes the operations of the wood-worker. To a nation of whittlers and choppers it should be a boon.

**Builder and Wood-Worker, N.Y.**: The work is within the capacity of any one trustworthy enough to own a sharp jack-knife; indeed, if the book was placed in the hands of every boy in the United States, both boys and States would be benefited.

**The Carpenter, St. Louis**: No better present could be given a boy, and carpenters would do well to see that it is in the hands of their sons.

**Youth's Examiner, Chicago**: This is one of the neatest and most useful volumes it has been our privilege to notice for some time.

**C. H. Dietrich**, *Supt. of Schools, Hopkinsville, Ky.*: It is a perfect gem. It deserves to find a place in every family in America, and should be put in the hands of every boy, high or low, rich or poor.

## *Manual Training.*

By Prof. C. M. WOODWARD, of the Manual Training School, Washington University, St. Louis.

THIS book is exceedingly practical, its main object being to show just how a manual training school should be organized and conducted. It contains courses of study, programmes of daily exercises, and working drawings and descriptions of class exercises in wood and metal. The course of drawing, which has proved eminently successful in the St. Louis school, is quite fully given. [Ready in October.

THE FOLLOWING TABLE OF CONTENTS WILL GIVE A  
GOOD IDEA OF THE CHARACTER OF DR. WOOD-  
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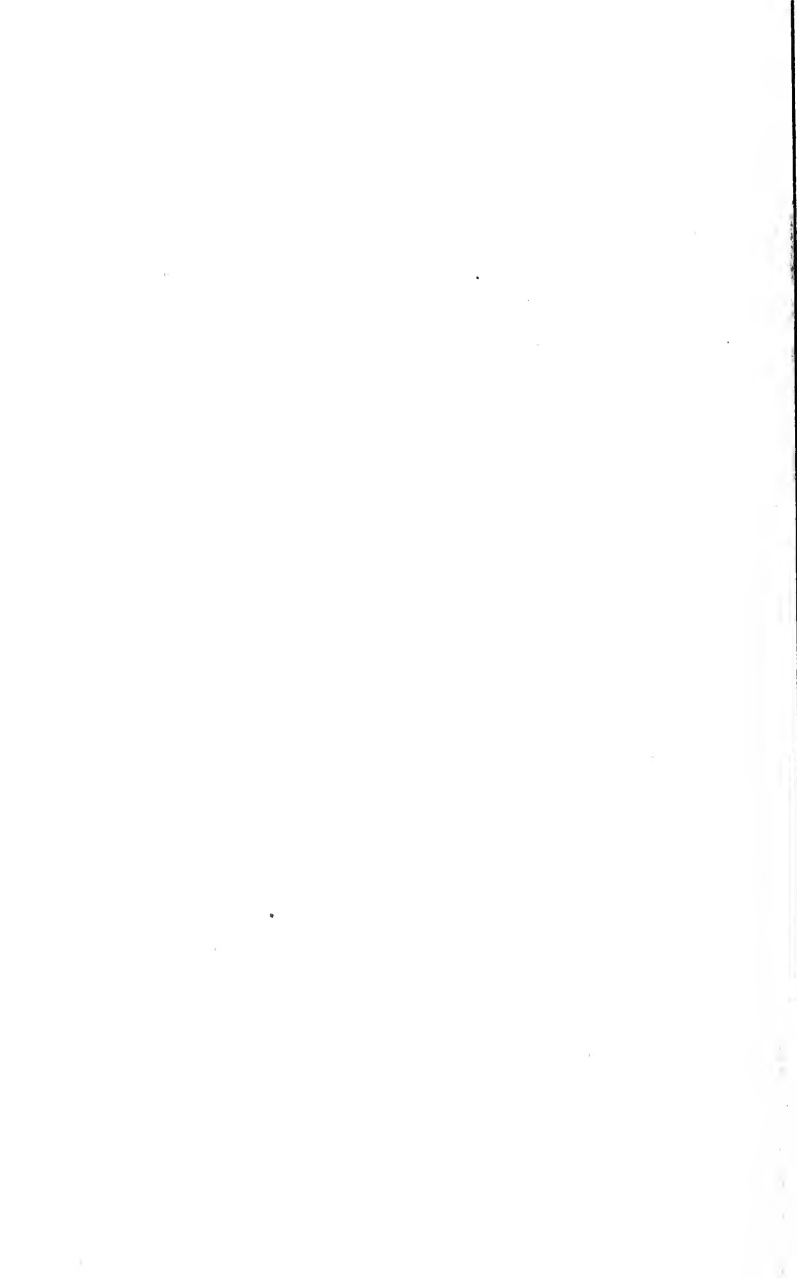
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